ERDC/CHL TR-02-16

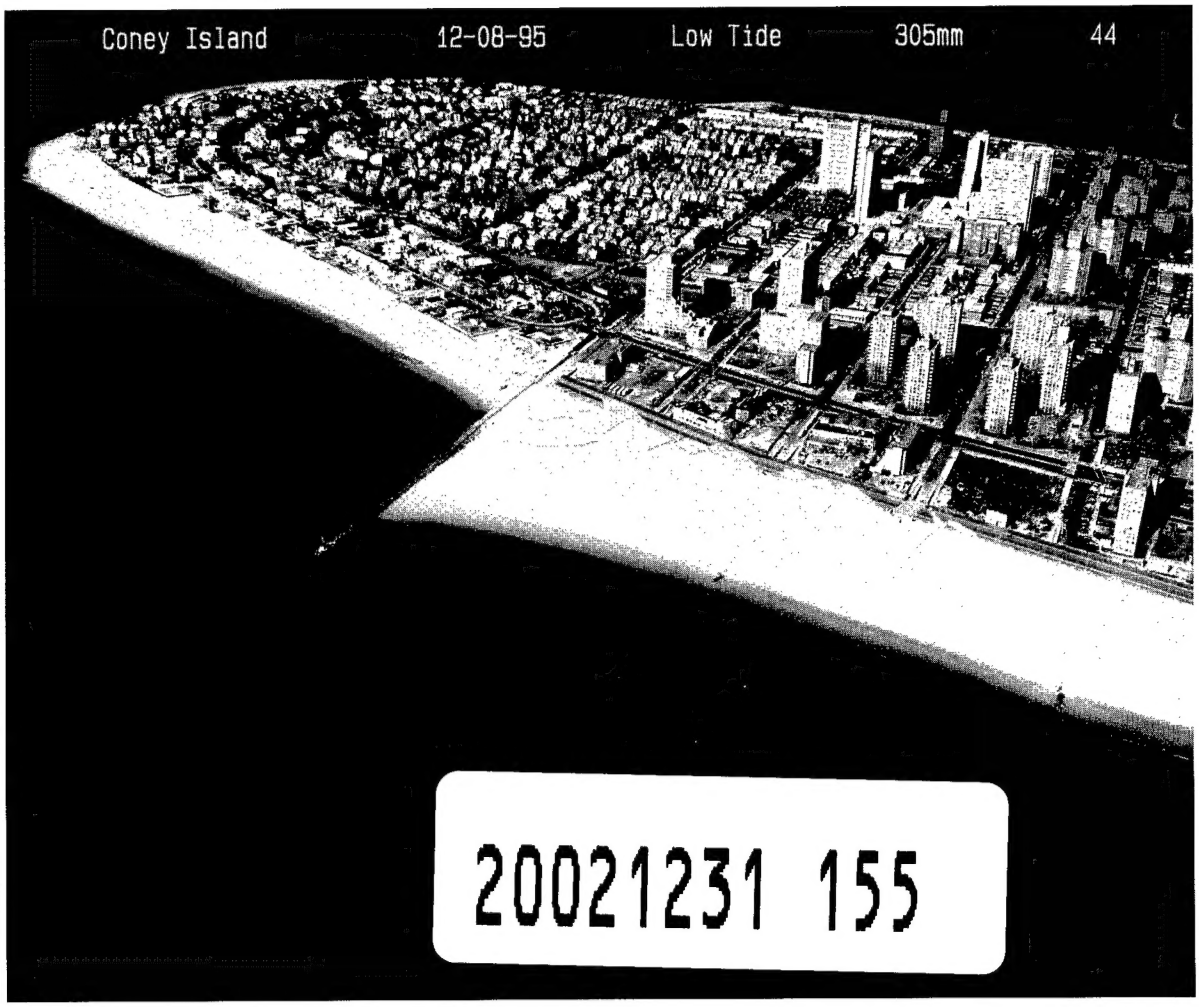
Coastal and Hydraulics Laboratory

US Army Corps
of Engineers®
Engineer Research and
Development Center

Atlantic Coast of New York Monitoring Program: Cross-Shore Profiles, Quality-Control Procedures, Monumentation, and Data Archiving

Andrew Morang

September 2002



ERDC/CHL TR-02-16
September 2002

Atlantic Coast of New York Monitoring Program: Cross-Shore Profiles, Quality-Control Procedures, Monumentation, and Data Archiving

by Andrew Morang

Coastal and Hydraulics Laboratory
U.S. Army Engineer Research and Development Center
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Report 1 of a series

Prepared for U.S. Army Engineer District, New York
New York, NY 10278

Contents

List of Figures

List of Tables

Preface

The investigation summarized in this report was conducted between 1995 and 2002 by the U.S. Army Engineer Research and Development Center (ERDC), Coastal and Hydraulics Laboratory (CHL). Work was performed under the general supervision of Mr. Thomas W. Richardson, Director, CHL, Dr. Yen-hsi Chu, Chief, Coastal Engineering Branch, CHL, and Ms. Joan Pope (former Chief, HC-S), CHL.

This report was written by Dr. Andrew Morang. Some of the data was analyzed and plotted by Ms. Mary Allison, CHL; Mr. Christian Hancock, Louisiana Tech University, Ruston, LA; Ms. Jena Kilgo, Warren Central High School, Vicksburg, MS; and Ms. Terri Prickett, CHL.

This project was sponsored by U.S. Army Engineer District (USAED), New York. Project managers at USAED, New York, were Messrs. David N. Rackmales, Stephen A. Couch, and Karl Ahlen. The following New York District personnel also provided data, maps, aerial photographs, historical information, and moral support: Ms. Odile Accilien, Ms. Lynn Bocamazo, Ms. Betsy MacMillan, Ms. Diane Rahoy, Ms. Christina Rasmussen, Mr. Paul Sylvestre, Mr. Keith Watson, and Dr. David W. Yang.

Discussions about profile data, datums, and Long Island geology with the following specialists have been very helpful, and I am grateful for their assistance: Messrs. Fred Anders and Mohabir Persaud, New York State Department of State; Mr. William Grosskopf, Offshore and Coastal Technologies, Inc. – East Coast; Messrs. Edward Hands and Randy Wise, Ms. Julie Rosati, and Dr. Donald Stauble, CHL; and Mr. Jay Tanski, New York Sea Grant.

This report was reviewed by Messrs. Persaud and Ahlen, Dr. Yang, and Ms. Rahoy.

At the time of publication of this report, Dr. James R. Houston was Director of ERDC, and COL John W. Morris III, EN, was Commander and Executive Director.

Conversion Factors, Non-SI to SI Units of Measurement

Non-SI units of measurement used in this report can be converted to SI units as follows:

Multiply	By	To Obtain
feet	0.3048	meters
miles (U.S. statute)	1.609347	kilometers

1 Introduction

Background

The Atlantic Coast of New York Monitoring Program (ACNYMP) was authorized in Section 404 of the Water Resources Development Act of 1992 (WRDA 92), which directed the Secretary of the Army (Civil Works) to develop a data collection and coastal processes monitoring program for the Long Island south shore between Coney Island and Montauk Point. The purpose of the program was to obtain and assemble data on coastal processes directed at addressing poststorm actions and long-term coastal erosion control. The ACNYMP was a cooperative effort between the U.S. Army Engineer District (USAED), New York, New York State Department of State (DOS), and New York Sea Grant.

The project had three main objectives:

a. Coastal data collection and analysis.

b. Development of a geographic information system (GIS) to organize and archive recent and historical data.

c. Distribution of data, maps, and coastal statistics to scientists, municipal managers, and the general public to be used for coastal management, engineering, and science.

The first phase of the program, coastal data collection, began in the spring of 1995. The data included cross-shore survey profiles (spring and fall), aerial photography (spring and fall), and offshore wave gauging.

One of the elements considered of prime importance to the program was the collection of cross-shore topographic – bathymetric profiles in the areas where profiles were not being regularly collected as part of some other monitoring or construction project. In the past, profiles had been collected only in specific regions, leaving long reaches without up-to-date topographic data. The ACNYMP was intended to rectify this lack of data in the reaches between Federal projects.

For the ACNYMP, profiles were run from established monuments on the beach or in the dunes across the beaches and into the water. Some profiles extended only to wading depth while others extended offshore to a water depth of approximately 30 ft. Some Jones Island profiles crossed Fire Island Inlet,

providing a complete cross-section of the inlet. For most south shore reaches, surveys were made from 1995 to 2001, but with some data gaps. By including data collected by other programs, Coney Island coverage extends back to 1988, and Westhampton Beach includes 1999 and 2000 surveys from the Westhampton Interim Project. Profiles typically were run at intervals of about 1,000 or 2,000 ft along the shore, with over 300 locations surveyed between Rockaway Beach and Montauk Point. Examples of the profiles are presented in Appendix A.

Purpose

This report describes the organization, quality-control procedures, and examination, of profile data collected between 1995 and 2001 between Coney Island and Montauk Point (objective *a*). Objectives *b* and *c* are not addressed here. This report describes the following elements:

a. Establishment of analysis and data management reaches

b. Data index and inventory

c. Documentation of data management and quality control procedures conducted at CHL for cross-shore profiles.

d. Documentation of procedures used at USAED, New York, to examine and test a graphical data viewing application developed by a contractor for the ACNYMP, known as "CoastalView."

Abbreviations and Units[1]

For brevity, survey dates are shortened to "S" for spring (as in S95) and "F" for fall. Line numbers are identified according to the reach:

CI = Coney Island (as in CI 200)
R = Rockaway
LB = Long Beach
JI = Jones Island
FI = Fire Island Zone
W = Westhampton Zone
P = Ponds Zone
M = Montauk Zone

[1] Profiles are displayed and listed in tables using non-SI units (ft) to retain consistency with historical survey data. A table of factors for converting non-SI to SI units is on page viii.

2 Reaches and Data Management

Geomorphic Reaches

The south shore of Long Island, NY, can be subdivided into eight zones or reaches based on geomorphology and the presence of inlets (Figures 1 and 2). Therefore, profiles are named according to the reach in which they are located. Table 1 lists the south shore inlets, and Table 2 lists general characteristics of each reach.

Figure 1. Satellite image of Long Island, NY. South shore barriers comprising study area are clearly visible. North is to top

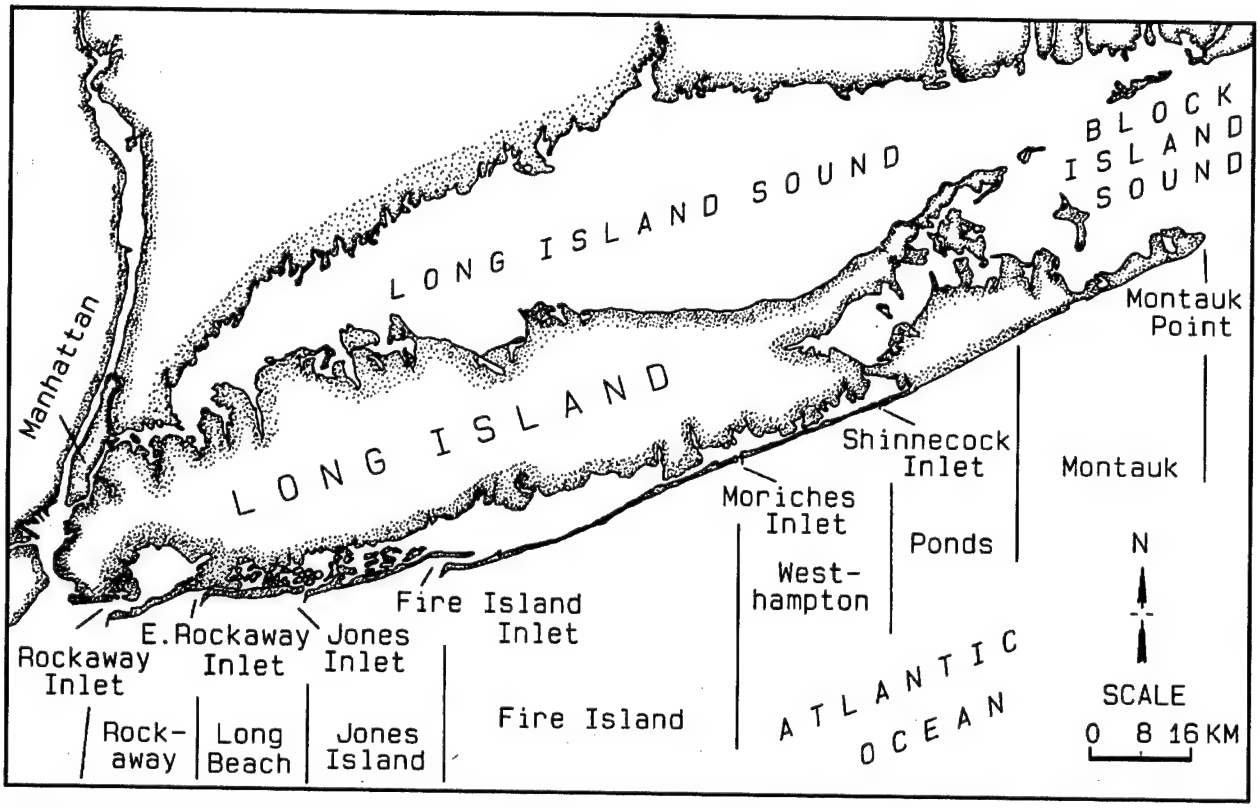


Figure 2. South shore reaches used for ACNYMP. Coney Island, not labeled in figure, is west of Rockaway Inlet

Table 1
Inlets Along South Shore of Long Island [1]

Inlet	Structures[2]	Bay or Sound	Island or Beach to West	Island or Beach to East	Distance from West Tip of Coney Island, km
Rockaway	Single jetty east side	Jamaica	Coney Island	Rockaway Beach	5.5
East Rockaway	Single jetty east side, 1933-1934.	Hempstead via Reynolds Channel	Rockaway Beach and City of Far Rockaway	Atlantic Beach (west end of Long Beach Island)	23
Jones	Single jetty east side, 1953-1959; Revetment along west side	Hempstead	Point Lookout (east end of Long Beach Island)	Short Beach (west end of Jones Beach)	38
Fire Island	Single jetty east side, 1939-1944	Great South	Cedar Island Beach (east end of Jones Beach)	Robert Moses State Park, Fire Island	61
Moriches	Parallel jetties, 1952-1954	Moriches	Fire Island	Westhampton Beach	111.5
Shinnecock	Parallel jetties, 1952-1954	Shinnecock	Tiana Beach	Southampton Beach	136

[1] All inlets have Federal navigation projects and require dredging to maintain navigable channels.
[2] Structures have complicated histories. The Moriches and Shinnecock jetties were first built by State or local agencies and later repaired and enlarged by USACE.

Table 2
Land Use Characteristics, South Shore Barriers and Islands [1]

Island, Reach (West to East)	Characteristics	Number of Profile Lines	Reach Length km
Coney	High-density urban development, part of New York City. Attached to the mainland during 1920s reclamation projects. Numerous beach fills have extended the natural shore seaward.	75; 7 run north into Gravesend Bay	7
Rockaway	Mostly urban with high-density development. Barrier spit attached to L. I. mainland at east end at Far Rockaway. Jamaica Bay to north.	98, 18 in Jacob Riis Park	17
Long Beach	Urban, with homes and commercial developments and full infrastructure. Groins along 60-70 percent of ocean side.	43	15
Jones Beach Island	Publicly owned, used primarily for recreation. Four-lane parkway extends length of island; built on a platform of 40 million yd^3 fill dredged from bay in 1920s. Four small residential communities, three are located landward of parkway. Sediment dredged from Fire Island Inlet is regularly placed on Jones Beach.	52	27.5
Fire Island	Semideveloped. Seventeen low-density summer residential communities. Intermittent beach renourishment at summer communities on both ocean and bay sides; records are incomplete. Vehicle traffic restricted (no paved roads), and access is by ferryboat. Approximately 26 miles of total length is included in Fire Island National Seashore, a portion managed as wilderness area.	84	49.7
Westhampton Beach	Low-density residential development, limited open space, recreational beaches. Historically has been very vulnerable to storm erosion and washover, especially Westhampton and Tiana Beaches. Major beach fills associated with groin field east (updrift) of Moriches Inlet.	78	24.8
Ponds Reach	Low-density residential development, recreational areas, farms, and open space. Playground of rich and famous, very exclusive beach homes have been built on barrier at Southampton and Easthampton.	43	26.1
Montauk	Mixture of low-density development, recreational area, open space. Limited dunes on low coastal plain. Eastern zone has cobble beach at base of 10- to 25-m-high glacial till bluffs.	43	32.5

[1] Summarized from Tanski, Bokuniewicz, and Schubert (1990) and other sources.

Data Sources

Numerous contractors as well as New York District surveyors have been responsible for collecting data in the field or flying aerial surveys. Table 3 outlines all known contractors and the dates of field collection. The data were compiled from numerous sources. Some of the dates were recorded on Interactive Survey Reduction Program- (ISRP-) format data files (Birkemeier 1984; Fleming and DeWall 1982). In other cases, the ISRP files did not list the survey date, but it was recorded on the Mylar plot sheets (transcribed by the author in New York District's offices). Other dates were provided by personnel at New York District or by the contractors. In some cases, the actual date that a profile was surveyed was not recorded and only the month is known.

Table 3
Sources and Dates of Data, Atlantic Coast of New York Monitoring Program

Area	Survey, Data Type	Survey Date	Horizontal Datum [1, 2]	Contractor [3]
Coney Island	June 88 profiles	6/31/88	NAD27	
	F88 profiles	11/8 - 11/9/88	NAD27	
	S91 profiles	4/25 - 4/27/ 91	NAD27	
	S93 profiles	Mar. 93	NAD27	
	F94 (prefill pay sections; actual survey coincided with July 94 - Jan 95 construction). NOT USED		Referred to construction baseline.	
	W94 (postfill pay sections). NOT USED		Referred to construction baseline	
	S95 (prefill monitoring survey -actual survey coincided with construction). NOT USED.	Dec. 94 – Jan. 95	NAD27	USAED, NY
	F95 (12-mo. postfill monitoring)	Nov. – Dec. 95	NAD27	USAED, NY
	W96 (west-end (partial) monitoring)	Jan. – Feb. 96	NAD27	USAED, NY
	S96 (16-mo. postfill monitoring)	Mar. – Apr. 96	NAD27	USAED, NY
	F96 (21-mo. postfill monitoring)	Sept. – Oct. 96	NAD27	USAED, NY
	W97 (west-end (partial) monitoring)	Nov. – Dec. 96	NAD27	USAED, NY
	S97 (28-mo. postfill monitoring)	Mar. – Apr. 97	NAD27	USAED, NY
	Sea Gate monitoring	Dec. 97	NAD27	USAED, NY
	S98 (40-mo. postfill monitoring)	Mar. – Apr. 98	NAD27	USAED, NY
	F98 profiles	Oct. 98	NAD27	USAED, NY
	S00 profiles	Apr. - May 2000	NAD27	USAED, NY
	S01 profiles	May – June 2001	NAD27	USAED, NY
Rockaway Beach	F95 profiles	Sept. – Oct. 95	NAD27	USAED, NY
	S96 profiles	Mar. – Apr. 96	NAD27	USAED, NY
	F96 profiles	8/26 - 9/16/96	NAD27	USAED, NY
	Summer 97 profiles	June 97	NAD27	TVGA
	F97 profiles	Sept. – Oct. 97	NAD27	TVGA
	S98 profiles	Apr. 98	NAD27	TVGA
	F98 profiles	Sept. 98	NAD27	TVGA
	Summer 00 profiles	June 2000	NAD27	
	S01 profiles	May 2001	NAD83	Rogers
Long Beach Island	Nov 91 profiles	11/10/91	NAD27	CPE
	Rectified aerial photographs[4]	10/6/95	NAD27	Rogers
	S95 profiles	Apr. – May 95	NAD27	USAED, NY
	Summer 95 profiles	June 95	NAD27	USAED, NY
	S96 profiles [5]	3/20 - 4/4/96	NAD27	TVGA
	W97 profiles [5]	12/5/96 - 1/29/97	NAD83	TVGA

(Sheet 1 of 3)

Table 3 (Continued)

Area	Survey, Data Type	Survey Date	Horizontal Datum [1, 2]	Contractor [3]
Long Beach Island (Cont.)	S97 profiles [5]	3/1 - 3/18/97	NAD83	TVGA
	F97 profiles	9/17 - 11/10/97		TVGA
	S98 profiles	3/20 - 3/28/98	NAD27 and NAD83	TVGA
	F98 profiles	10/27 - 11/4/98	NAD83	TVGA
	S01 profiles	Apr. 2001	NAD83	Rogers
Jones Island	Summer 95 profiles	7/20 - 8/24/95	NAD83	Rogers
	F95 profiles	10/6 - 12/1/95	NAD83	Rogers
	S96 profiles	3/11 - 3/29/96	NAD83	Rogers
	F96 profiles [5]	9/12 - 9/24 and 10/1 -10/17/96	NAD83	TVGA
	S97 cross-island profiles [6]	3/1/97	NAD83	OCTI
	S97 profiles	Mar. 97	NAD83	Rogers
	F97 profiles	Oct. 97	NAD83	Rogers
	Summer 98 profiles	July 98	NAD83	Rogers
	F98 profiles	Oct. 98	NAD83	Rogers
	S01 profiles	Apr. 2001	NAD83	Rogers
Fire Island reach (F.I. Inlet to Moriches Inlet)	S95 profiles	3/25 - 4/16/95	NAD83	OCTI
	F95 profiles	10/30 - 11/4/95	NAD83	OCTI
	S96 profiles	3/21 - 3/26/96	NAD83	OCTI
	F96 profiles	10/25 - 10/27/96	NAD83	OCTI
	S97 cross-island profiles [6]	2/27 - 3/1/97	NAD83	OCTI
	S97 profiles	3/16 - 3/27/97	NAD83	OCTI
	S98 profiles	2/23 - 3/8/98	NAD83	OCTI
	F98 profiles	10/25 - 11/2/98	NAD83	OCTI
	S01 profiles	Mar. – Apr. 2001	NAD83	OCTI
Westhampton reach (Moriches Inlet to Shinnecock Inlet)	S95 profiles	4/16 - 4/19/95	NAD83	OCTI
	F95 profiles	11/8 - 11/11/95	NAD83	OCTI
	S96 profiles	3/28 - 3/31/96	NAD83	OCTI
	F96 profiles	10/27 - 10/29/96	NAD83	OCTI
	S97 cross-island profiles [6]	2/24 - 2/27/97	NAD83	OCTI
	S97 profiles	3/18 - 4/1/97	NAD83	OCTI
	S98 profiles [7]	2/11 - 2/20/98	NAD83	OCTI
	F98 profiles [7]	10/10 - 10/13/99	NAD83	OCTI
	S99 profiles (W1 - W20) [7]	3/30 - 4/1/99	NAD83	OCTI
	F99 profiles	11/5 - 11/8/ 99	NAD83	OCTI
	S00 profiles	4/23 - 4/24/00	NAD83	OCTI
	S01 profiles	Apr. 2001	NAD83	OCTI
Ponds reach (Shinnecock Inlet to East Hampton)	S95 profiles	4/1 - 4/29/95	NAD83	OCTI
	F95 profiles	11/15 - 11/20/95	NAD83	OCTI
	S96 profiles	4/1 - 4/5/96	NAD83	OCTI
	F96 profiles	10/14 - 10/29/96	NAD83	OCTI
	S97 cross-island profiles (P1 - P9) [6]	2/24/97	NAD83	OCTI
	S97 profiles	3/25 - 4/3/99	NAD83	OCTI
	S98 profiles	3/11- 3/16/98	NAD83	OCTI
	F98 profiles	10/13 - 10/24/98	NAD83	OCTI
	S01 profiles	Apr. 2001	NAD83	OCTI

(Sheet 2 of 3)

Table 3 (Concluded)

Area	Survey, Data Type	Survey Date	Horizontal Datum [1, 2]	Contractor [3]
Montauk reach (East Hampton to Montauk Point)	S95 profiles	4/29 - 4/30/95	NAD83	OCTI
	F95 profiles	11/20 - 12/8/95	NAD83	OCTI
	S96 profiles	4/5 - 4/14/96	NAD83	OCTI
	F96 profiles	10/15 - 11/4/96	NAD83	OCTI
	S97 profiles	4/1 - 4/3/97	NAD83	OCTI
	S98 profiles	3/16 - 3/19/98	NAD83	OCTI
	F98 profiles	10/24 - 11/1/98	NAD83	OCTI
	S01 profiles	June 2001	NAD83	OCTI
Regional - Long Island south shore	S95 aerial photo [8]	3/26-27/95	1:9,600	TVGA[6]
	F95 aerial photo [9]	11/5/95	1:9,600	OSI
	S96 aerial photo	3/30/96	1:9,600	SB
	F96 aerial photo	9/21/96, 9/25/96, 10/24/96	1:9,600	SB
	S97 aerial photo [10]	4/22/97	1:9,600	SB
	F97 aerial photo [10]	Oct. 97	1:9,600	SB
	S98 aerial photo	7/12/98, 7/21/98, 8/1/98		HAS Images
	F98 aerial photo	10/16-17/98		AeroMetrics
	S99 aerial photo	4/14/99	1:9,600	AeroMetrics
	F99 aerial photo	10/6/99	1:9,600	AeroMetrics
	S00 aerial photo	5/3/00	1:9,600	Barton?
	F00 aerial photo	11/7/00	1:9,600	
	S01 aerial photo	6/1/01 & 6/5/01	1:9,600	Atlantic
	F01 aerial photo			Geomaps Intl.
	S02 aerial photo	4/11/02		Geomaps Intl.

Notes:
Shaded boxes in Coney reach represent profile data that was not digitized or used in the ACNYMP database.

[1] Horizontal coordinate system for all profile surveys is New York State Plane Lambert projection (in feet), Long Island zone.

[2] Vertical datum for all profile surveys: National Geodetic Vertical Datum (NGVD), 1929 adjustment.

[3] Contractors or surveyors:
Atlantic = Atlantic Technologies, 2227 Drake Ave. SW, Building 14, Huntsville, AL (256-882-7788)
Barton = Barton Aerial Technologies
CPE = Coastal Planning Engineering, Boca Raton, FL
Geomaps = Geomaps International Aerial Photogrammetry, Bethpage, NY
HAS = HAS Images, Inc. (subcontractor to Geomaps)
John Chance = John Chance and Associates, Lafayette, LA.
OCTI = Offshore Coastal Technologies, Inc. – East Coast, Chadds Ford, PA
OSI = Ocean Surveys, Inc., Old Saybrook, CT
Rogers = Rogers Surveying, Inc., Staten Island, NY
SB = Sidney B. Bowne and Son, Mineola, NY.
TVGA = TVGA Engineering, Surveying, P.C., 1000 Maple Road, P.O. Box H, Elma, NY 14059.
USAED, NY = U.S. Army Engineer District, New York, Survey Branch

[4] Rectified images available in digital form, to be plotted by Intergraph Microstation software.

[5] Profiles are not original field measurements but are interpolated from TIN (triangular irregular network) surfaces generated by Intergraph Inroads v. 5.0 or v. 7.0 software.

[6] Cross-island profiles, from beach to back bay, sponsored by NY State Department of State.

[7] Profiles W1 - W20 and extra profile lines sponsored by Westhampton Interim Project.

[8] Monuments placed in field and flagged (to be visible on aerial photographs) by TVGA.

[9] Monuments on ground flagged by C.T. Male Associates, Latham, NY.

[10] Monuments on ground flagged by Sidney Bowne.

The Corps of Engineers has sponsored earlier profile surveys. The Corps surveyed long ranges in 1955 at benchmarks spaced approximately every mile along the shore (Tanski, Bokuniewicz, and Schubert 1990). Surveys from the 1930s and 1940 are also said to exist but have not been located. The Coastal Engineering Research Center profiles collected at Jones Beach in the 1960s (Morton, Bohlen, and Aubrey 1986) and at Westhampton Beach in the 1960s (DeWall 1979). Strock, Inc., surveyed another set of ranges in 1979. These profiles have been inspected, checked, and digitized by a contractor for the DOS (OCTI 1997). Research Planning Institute of Columbia, SC, examined the 1955 and 1979 profiles as part of a sediment budget analysis (RPI 1983). The monuments are listed in Appendix B. Other sets of profiles may exist as paper files for limited reaches near Federal projects, but these data may no longer be recoverable. Recovering as much older data as possible and combining it with the current database should be a priority for future phases of the ACNYMP.

Profile Numbering Convention

Over time, numbering conventions for Long Island profiles have changed, causing considerable confusion as researchers tried to compare recent with old profiles. In 1995, the DOS proposed a numbering convention based on the reach in which the profiles were located. This system was adopted for the ACNYMP and was first used for the F95 surveys. Tables 4 through 8 list the new convention and the corresponding older profile numbers for the south shore between Jones Island and Montauk Point. Profiles listed in this report use the new DOS/ACNYMP convention.

Table 4
Profile Numbering Nomenclature: Jones Island

USACE 1955 Range Nos. [1]	Strock 1979 Range (RPI 1983) [2]	1985 Erdman Anthony Topo. Maps [3]	OCTI S95 ISRP [4]	OCTI F95-S98 ISRP [4] (LI__)	Westhampton Interim, OCTI 1998, 2000 [5] LI__)	OCTI 1999 [5] PS__)	ACNYMP Number System [6]
		266	01				J16
		266A	02				J15
		266B	03				J14

Notes:
Adapted from table provided by NY State Department of State, Albany, NY. (Personal Communication, September 1997, Mohabir Persaud, Coastal Resources Specialist; New York State Department of State, Albany, NY.)
[1] Ranges surveyed by USACE in 1955.
[2] Strock 1979 ranges as listed in the 1983 Sediment Budget Report by Research Planning Institute and shown on sediment budget map (RPI 1983).
[3] Ranges shown on USACE map produced for the Spring 1995 Statement of Work and shown on 1995 Erdman Anthony topographic maps. Digital maps (Intergraph format) available from USAED, New York.
[4] Range numbers as shown in the Interactive Survey Reduction Program (ISRP) listing of beach surveys by Offshore and Coastal Technologies, Inc. – East Coast, Chadds Ford, PA, 1995 to 1998.
[5] Range numbers for Westhampton Interim project surveys by Offshore and Coastal Technologies, Inc., Avondale, PA, 1998 to 2000. Extra lines added to meet project requirements. Note confusion in the numbering schemes.
[6] New York Department of State number system. This is contemporary numbering system for Long Island south shore profiles. Includes new profiles added in F95 and extra lines in the Westhampton Interim Project area.

Reaches:
J = Jones Beach; F = Fire Island; W = Westhampton; WI = Westhampton Interim Project area; P = Coastal Ponds; M = Montauk (beach and bluffs).

Table 5
Profile Numbering Nomenclature: Fire Island

USACE 1955 Range Nos. [1]	Strock 1979 Range (RPI 1983) [2]	1985 Erdman Anthony Topo. Maps [3]	OCTI S95 ISRP [4]	OCTI F95-S98 ISRP [4] (LI__)	ACNYMP Number System [5]
020C	001	001	04	01	F1
				02	F2
020B	002	002	05	03	F3
				04	F4
020A	003	003	06	05	F5
				06	F6
	004	004	07	07	F7
				08	F8
024	005	005	08	09	F9
				10	F10
	006	006	09	11	F11
026	007	007	10	12	F12
		007A	11	13	F13
		007B	12	14	F14
		007C	13	15	F15
		007D	14	16	F16
		007E	15	17	F17
		007F	16	18	F18
		007G	17	19	F19
	008	008	18	20	F20
		008A	19	21	F21
		008B	20	22	F22
		008C	21	23	F23
	009	009	22	24	F24
		009A	23	25	F25
		009B	24	26	F26
		009C	25	27	F27
		009D	26	28	F28
	010	010	27	29	F29
		010A	28	30	F30
		010B	29	31	F31
027	011	011	30	32	F32
028	012	012	31	33	F33
				34	F34
		012A	32	35	F35
		013	33	36	F36
		013A	34	37	F37
		013B	35	38	F38
	014	014	36	39	F39
		014A	37	40	F40
		014B	38	41	F41
		014C	39	42	F42

(Continued)

Table 5 (Concluded)					
USACE 1955 Range Nos. [1]	Strock 1979 Range (RPI 1983) [2]	1985 Erdman Anthony Topo. Maps [3]	OCTI S95 ISRP [4]	OCTI F95-S98 ISRP [4] (LI__)	ACNYMP Number System [6]
029	015	015	40	43	F43
		015A	41	44	F44
		015B	42	45	F45
		016	43	46	F46
		016A	44	47	F47
		016B	45	48	F48
		016C	46	49	F49
030	017	017	47	50	F50
		017A	48	51	F51
		017B	49	52	F52
		017C	50	53	F53
		018	51	54	F54
		018A	52	55	F55
		018B	53	56	F56
		018C	54	57	F57
		019	55	58	F58
				59	F59
031	020	020	56	60	F60
				61	F61
		021	57	62	F62
				63	F63
032	022	022	58	64	F64
				65	F65
		023	59	66	F66
				67	F67
	024	024	60	68	F68
				69	F69
		025	61	70	F70
		026	62	71	F71
033	027	027	63	72	F72
				73	F73
				74	F74
				75	F75
034	028	028	64	76	F76
		029	65	77	F77
				78	F78
035	030	030	66	79	F79
				80	F80
	031	031	67	81	F81
	031A	031A	68	82	F82
	031B	031B	69	83	F83
036	032	032	70	84	F84
Table updated Nov. 15, 2001. For notes, see Table 4.					

Table 6
Profile Numbering Nomenclature: Westhampton

USACE 1955 Range Nos. [1]	Strock 1979 Range (RPI 1983) [2]	1985 Erdman Anthony Topo. Maps [3]	OCTI S95 ISRP [4]	OCTI F95-S98 ISRP [4] (LI__)	Westhampton Interim OCTI 1998, 2000, 2001 [5] LI__)	OCTI 1999 [5] PS__)	ACNYMP Number System [6]
				85	39	1	W1
				86	38	2	W2
808 + 00	032A	032A	71	87	37	3	W3
750 + 00	032B	032B	72	88	36	4	W4
					40	5	
037	033	033	73	89	35	6	W5
					34	7	W740
					33; WI9	8	W5.1
					32; WI8	9	W5.2
					31; WI7	10	W5.3
					30; W720	11	W5.4
038	034	034	74	90	29	12	W6
					28; WI6	13	W6.1
				91	27		W7
					26; W700	14	W7.1
					25; WI5	15	W7.2
					24; WI4	16	W7.3
				92	23		W8
					22	17	W680
				93	21		W9
					20; WI3	18	W9.1
					19; WI2	19	W9.2
					41	20	
				94	18		W10
					17; WI1	21	W10.1
		035*	75	95	16	22	W11
					15; W634	23	W11.1
					42	24	
					43	25	
				96	14		W12
					13; W606	26	W12.1
		036*	76	97	12	27	W13
					11	28	W590
					10; W578	29	W13.1
				98	9		W14
					44	30	
					45	31	
					8; W552	32	W14.1
				99	7		W15
					6; W544	33	W15.1
					46	34	
					47	35	
		037*	77	100	5	36	W16
				101	4		W17

(Continued)

Table 6 (Concluded)

USACE 1955 Range Nos. [1]	Strock 1979 Range (RPI 1983) [2]	1985 Erdman Anthony Topo. Maps [3]	OCTI S95 ISRP [4]	OCTI F95-S98 ISRP [4] (LI__)	Westhampton Interim OCTI 1998, 2000, 2001 [5] LI__)	OCTI 1999 [5] PS__)	ACNYMP Number System [6]
	038	038	78	102	3	37	W18
				103	2		W19
039	039	039	79	104	1	38	W20
				105			W21
040	040	040	80	106			W22
				107			W23
	041	041	81	108			W24
				109			W25
	042	042	82	110			W26
				111			W27
	043	043	83	112			W28
				113			W29
				114			W30
				115			W31
				116			W32
				117			W33
				118			W34
042	045	045	85	119			W35
		045A	86	120			W36
		045B	87	121			W37
		045C	88	122			W38
				214			W50
		045D	89	123			W39
				215			W49
	046	046	90	124			W40
				216			W48
	046A	046A	91	125			W41
				217			W47
				218			W46
	046B	046B	92	126			W42
				127			W43
				219			W45
043	047	047	93	128			W44

Table updated August 8, 2002. For notes, see Table 4.

Table 7
Profile Numbering Nomenclature: Ponds

USACE 1955 Range Nos. [1]	Strock 1979 Range (RPI 1983) [2]	1985 Erdman Anthony Topo. Maps [3]	OCTI S95 ISRP [4]	OCTI F95-S98 ISRP [4] (LI__)	ACNYMP Number System [5]
044	047A	047A	94	129	P1
				220	SH1
	047B	047B	95	130	P2
				221	SH2
		048	96	131	P3
				132	P4
		049	97	133	P5
				134	P6
		050	98	135	P7
				136	P8
045	051	051	99	137	P9
				138	P10
		052	100	139	P11
				140	P12
		053		141	P13
				142	P14
046	054	054	102	143	P15
				144	P16
047	055	055	103	145	P17
				146	P18
				147	P19
		056	104	148	P20
				149	P21
		057	105	150	P22
				151	P23
				152	P24
				153	P25
		058	106	154	P26
				155	P27
				156	P28
				157	P29
048	059	059	107	158	P30
				159	P31
		060	108	160	P32
				161	P33
		061	109	162	P34
				163	P35
				164	P36
049	062	062	110	165	P37
				166	P38
				167	P39
				168	P40
050	063	063	111	169	P41
				170	P42

Table updated Nov. 15, 2001. For notes, see Table 4.

Table 8
Profile Numbering Nomenclature: Montauk

USACE 1955 Range Nos. [1]	Strock 1979 Range (RPI 1983) [2]	1985 Erdman Anthony Topo. Maps [3]	OCTI S95 ISRP [4]	OCTI F95-S98 ISRP [4] (LI__)	ACNYMP Number System [6]
		064	112	171	M1
				172	M2
				173	M3
				174	M4
		065	113	175	M5
				176	M6
051	066	066	114	177	M7
				178	M8
				179	M9
		067	115	180	M10
				181	M11
		068	116	182	M12
				183	M13
		069	117	184	M14
				185	M15
		070	118	186	M16
				187	M17
052	071	071	119	188	M18
				189	M19
		072	120	190	M20
				191	M21
				192	M22
053	073	073	121	193	M23
				194	M24
		074	122	195	M25
				196	M26
		075	123	197	M27
				198	M28
	076	076	124	199	M29
				200	M30
				201	M31
054	077	077	125	202	M32
				203	M33
		078	126	204	M34
055				205	M35
				206	M36
				207	M37
				208	M38
				209	M39
				210	M40
056				211	M41
				212	M42
057				213	M43
058					

Table updated Nov. 15, 2001. For notes, see Table 4.

Profile Monumentation

Tables 9 to 16 list the origin monuments and the specified azimuth for each ACNYMP profile. The coordinate system is New York State Plane, Long Island Zone, NAD 83, with units in feet, except for Coney Island, which is NAD27. Profile numbers in each table are listed without their location abbreviation (e.g., in the Coney Island table, Profile 230 is shown as "230" rather than "CI230"). Figures 3-10 show each of the study reaches with profiles plotted in their correct positions and alignments.

Table 9
Monuments: Coney Island

Profile Number	Northing	Easting	Azimuth
1	127,866.00	2,017,687.00	170
2	128,024.00	2,016,656.00	170
3	128,182.00	2,015,625.00	170
4	127,691.00	2,014,744.00	170
7	127,200.63	2,013,868.76	170
8	127,280.00	2,012,550.00	170
10	127,378.78	2,011,790.22	170
20	127,321.41	2,010,791.87	170
30	127,262.56	2,009,793.60	170
40	127,186.24	2,008,797.81	170
50	126,964.51	2,007,822.70	170
60	126,775.47	2,006,841.58	170
70	126,634.10	2,005,851.62	170
80	126,490.48	2,004,861.99	170
90	126,381.88	2,003,868.08	173
100	126,228.68	2,002,884.31	173
110	126,046.51	2,001,905.53	173
120	126,021.41	2,000,908.28	180
130	126,000.00	2,000,430.00	180
140	126,118.83	1,999,919.99	190
141	126,165.08	1,999,618.78	172
143	126,279.69	1,999,403.36	172
EJ(1)	126,325.73	1,999,271.65	172
WJ(2)	126,372.61	1,999,140.11	172
150	126,265.96	1,999,442.13	205
151	126,345.86	1,999,216.13	197
153	126,367.52	1,999,154.85	199
155	126,389.19	1,999,093.57	201
157	126,410.85	1,999,032.28	203
160	126,432.52	1,998,971.00	205
160-1	126,495.80	1,998,830.00	205
170	126,612.82	1,998,504.64	205
170-1	126,744.20	1,998,290.00	205
180	126,793.12	1,998,038.28	205
180-1	126,941.90	1,997,832.80	205
190	126,973.91	1,997,572.11	205

(Continued)

Table 9 (Concluded)			
Profile Number	Northing	Easting	Azimuth
190-1	127,057.60	1,997,394.90	205
190-2	127,152.00	1,997,175.00	205
200	127,223.41	1,996,959.68	205
200-1	127,356.20	1,996,757.80	205
200-2	127,497.60	1,996,629.10	205
210	127,719.11	1,996,482.65	257
210-1	127,719.10	1,996,467.90	
210-2	128,069.30	1,996,435.90	
210-3	128,210.10	1,996,417.90	
220	128,399.56	1,996,380.07	270
220-1	128,558.90	1,996,367.90	
230	128,844.26	1,996,588.19	305
230-1	129,005.50	1,996,705.80	
230-2	129,119.40	1,996,837.90	
230-3	129,207.00	1,996,989.00	
240	129,280.82	1,997,240.22	347
240-1	129,309.90	1,997,459.00	
250	129,389.98	1,997,989.88	352
250-1	129,437.90	1,998,183.80	
250-2	129,550.40	1,998,347.00	
250-3	129,570.20	1,998,542.00	
260	129,618.05	1,998,783.02	352
260-1	129,595.20	1,998,183.80	
260-2	129,557.20	1,999,179.00	
260-3	129,544.40	1,999,374.00	
260-4	129,533.20	1,999,576.90	
270	129,522.25	1,999,783.69	16
270-1	129,476.50	1,999,977.80	16
270-2	129,389.60	2,000,130.80	16
270-3	129,331.00	2,000,294.90	16
280	129,279.32	2,000,504.92	16
280-1	129,219.00	2,000,707.10	16
280-2	129,168.80	2,000,874.90	16
280-3	129,121.90	2,001,042.80	16
290	129,064.27	2,001,234.35	16
290-1	129,000.00	2,001,450.00	16
290-1	128,940.00	2,001,672.00	16
290-2	128,900.00	2,001,870.00	16
300	128,841.94	2,002,077.11	16

Notes:
Coordinate system: New York State Plane Lambert projection, Long Island Zone, NAD 27, units in feet.
Coordinates: Based on scopes of work for 2000 surveys, from USAED, New York.
Azimuth in degrees relative to true north. Profiles 270 + extend north into Sheepshead Bay.

Table 10 Monuments: Rockaway Beach			
Profile Number	Northing	Easting	Azimuth
01	138,170.09	1,001,224.71	169.00
02*	138,809.68	1,002,032.04	169.00
03*	139,402.10	1,002,937.70	169.00
04*	139,964.10	1,003,765.70	169.00
05	140,447.10	1,004,664.69	169.00
06*	140,824.11	1,005,508.69	169.00
07*	141,269.11	1,006,413.69	169.00
08*	141,713.11	1,007,330.68	169.00
09	141,998.10	1,008,270.68	169.00
10*	142,200.32	1,009,261.83	
11*	142,077.12	1,010,273.68	
12*	142,336.12	1,011,933.68	
13	142,556.66	1,013,163.70	160.00
14*	143,057.13	1,015,943.67	
15*	143,597.14	1,016,483.67	
16*	144,081.14	1,016,967.66	
17	145,888.13	1,021,686.36	155.33
18	146,016.14	1,022,178.65	155.33
19	146,149.34	1,022,447.60	155.33
22	146,460.15	1,023,075.16	155.33
23	146,904.15	1,023,971.66	155.33
24	147,309.52	1,024,775.86	155.33
25	147,807.43	1,025,757.66	155.33
26	148,260.09	1,026,650.19	155.33
27	148,712.55	1,027,542.79	155.33
28	149,115.88	1,028,457.98	155.33
29	149,500.30	1,029,381.85	155.33
30	149,876.78	1,030,309.35	155.33
31	150,053.09	1,030,698.18	164.79
32	150,196.23	1,031,073.78	164.79
33	150,303.58	1,031,355.48	164.79
34	150,339.37	1,031,449.38	164.79
35	150,482.51	1,031,824.99	164.79
36	150,661.43	1,032,294.49	164.79
37	150,840.37	1,032,764.00	164.79
38	151,019.30	1,033,233.50	164.79
39	151,184.09	1,033,706.85	164.79
40	151,341.76	1,034,182.12	164.79
41	151,520.70	1,034,651.62	164.79
42	151,701.94	1,035,120.49	164.79
43	151,872.96	1,035,592.15	164.79
44	152,026.11	1,036,068.66	164.79
45	152,209.88	1,036,831.09	164.79
46	152,271.13	1,036,831.09	164.79
47	152,368.57	1,037,062.68	164.79
48	152,480.61	1,037,292.28	164.79
49	152,569.91	1,037,475.27	164.79
50	152,681.52	1,037,703.99	164.79
51	152,758.30	1,037,942.20	164.79
52	152,778.38	1,038,144.00	164.79
53	152,803.50	1,038,396.25	164.79

(Continued)

Table 10 (Concluded)

Profile Number	Northing	Easting	Azimuth
54	152,828.60	1,038,648.48	164.79
55	152,848.69	1,038,850.29	164.79
56	152,873.79	1,039,102.53	164.79
57	152,898.90	1,039,354.78	164.79
58	152,924.28	1,039,555.14	164.79
59	152,984.54	1,039,797.83	164.79
60	153,044.81	1,040,040.52	164.79
61	153,093.02	1,040,234.68	164.79
62	153,153.29	1,040,477.37	164.79
63	153,213.55	1,040,720.05	164.79
64	153,261.78	1,040,914.21	164.79
65	153,322.05	1,041,156.89	164.79
66	153,384.68	1,041,398.94	164.79
67	153,434.85	1,041,592.56	164.79
68	153,497.57	1,041,834.59	164.79
69	153,560.29	1,042,076.61	164.79
70	153,610.46	1,042,270.23	164.79
71	153,686.16	1,042,508.23	164.79
72	153,780.84	1,042,742.06	164.79
73	153,857.32	1,042,928.52	164.79
74	154,010.29	1,043,301.45	164.79
75	154,201.52	1,043,767.62	164.79
76	154,392.73	1,044,233.77	164.79
77	154,483.68	1,044,727.19	164.79
78	154,634.50	1,045,204.34	164.79
79	154,785.63	1,046,174.51	175.97
80	154,793.62	1,046,274.19	175.97
81	154,825.58	1,046,672.94	175.97
82	154,865.52	1,047,171.36	175.97
83	154,880.81	1,047,471.03	175.97
84	154,861.61	1,047,773.12	175.97
85	154,848.81	1,047,974.52	175.97
85A	154,829.58	1,048,276.62	175.97
86	154,810.42	1,048,578.72	175.97
87	154,800.31	1,048,779.92	175.97
87A	154,825.88	1,049,028.61	175.97
88	154,851.43	1,049,277.31	175.97
88A	154,883.31	1,049,475.68	175.97
89	154,915.25	1,049,674.05	175.97
89A	154,947.07	1,049,922.43	175.97
90	154,978.90	1,050,170.81	175.97
91	155,004.14	1,050,369.53	175.97
92	155,029.68	1,050,568.22	175.97
93	155,055.28	1,050,766.92	175.97
95	155,106.01	1,051,164.33	175.97
97	155,162.52	1,051,661.59	175.97
98	155,200.00	1,052,360.69	175.97
99	155,216.06	1,052,660.30	175.97

Notes:
Coordinates system: New York State Plane Lambert projection, Long Island Zone, NAD83, units in feet.
Profiles with *: From 1996 survey notes, converted from NAD27 to NAD83.
Most profiles: Based on 2000 scope of work, from USAED, New York, with additional data provided via e-mail communication.
Azimuth in degrees relative to true north.

Table 11
Monuments: Long Beach

Profile Number	Northing	Easting	Azimuth
120	154,978.91	1,101,865.33	111.5
130	152,998.77	1,101,081.01	111.5
140	153,010.14	1,101,091.30	180
150	153,215.23	1,099,485.64	180
160	153,316.76	1,097,991.56	180
170	153,252.22	1,096,503.24	180
172	153,618.81	1,095,048.73	180
174	153,888.22	1,093,579.66	180
180	153,660.86	1,091,610.25	180
182	153,343.01	1,090,144.32	180
184	153,025.17	1,088,678.39	180
190	152,601.77	1,086,725.74	180
192	152,278.33	1,085,247.42	180
194	152,062.68	1,084,284.59	180
196	151,981.55	1,082,997.43	180
200	151,939.03	1,081,791.67	180
202	151,917.86	1,080,620.45	180
204	151,989.42	1,079,294.24	180
206	152,069.18	1,078,091.46	180
210	152,212.15	1,076,850.10	180
212	152,194.80	1,075,596.48	180
214	152,177.78	1,074,350.35	180
216	152,159.82	1,073,038.49	180
220	152,143.62	1,071,850.60	180
222	152,128.44	1,070,740.50	180
224	152,109.46	1,069,350.84	180
226	152,089.06	1,067,860.52	180
230	152,124.37	1,066,853.02	180
232	152,216.78	1,065,857.31	180
234	152,312.60	1,064,824.91	180
236	152,511.06	1,063,846.51	180
238	152,660.60	1,062,857.76	180
240	152,744.17	1,061,864.18	180
250	152,784.14	1,061,365.78	180
260	152,864.08	1,060,368.99	180
270	152,944.02	1,059,372.19	180
280	153,016.06	1,058,466.71	180
290	153,046.15	1,057,467.57	180
300	153,155.35	1,056,475.34	180
310	153,334.13	1,055,400.03	180
320	153,028.09	1,054,448.02	180
330	152,722.22	1,053,496.50	180
340	152,964.75	1,052,598.91	180
A	153,278.94	1,098,381.35	180
B	153,283.94	1,097,195.36	180
C	153,348.95	1,095,985.36	180
D	153,408.96	1,094,815.37	180
E	153,498.97	1,093,625.37	180

Notes:
Coordinate system: New York State Plane Lambert projection, Long Island Zone, NAD 83, units in feet.
Coordinates: Based on scopes of work for 2001, from USAED, New York.
Azimuth in degrees relative to true north.

Table 12
Monuments: Jones Island

Profile Number	Northing	Easting	Azimuth
1	173,542.31	1,191,847.47	180.00
2	173,408.41	1,189,947.38	180.00
3	172,824.92	1,188,047.24	180.00
4	173,497.07	1,186,147.33	180.00
5	173,654.10	1,184,247.50	180.00
6	173,270.74	1,182,347.49	180.00
7	173,222.91	1,180,447.58	180.00
8	173,049.30	1,178,546.88	180.00
9	173,251.04	1,176,646.87	180.00
10	173,496.25	1,174,659.54	169.63
11	173,337.72	1,172,814.15	169.63
12	172,960.67	1,170,922.78	169.63
13	171,053.11	1,168,050.77	169.63
14	171,102.58	1,167,064.88	169.63
15	170,322.96	1,165,170.90	169.63
16	169,552.18	1,163,248.85	169.63
17	168,783.04	1,161,380.01	169.63
18	168,007.46	1,159,496.65	169.63
19	167,245.16	1,157,646.48	169.63
20	166,508.88	1,155,793.57	169.63
21	165,798.20	1,153,895.51	169.63
22	165,142.32	1,152,007.97	169.63
23	164,425.78	1,150,129.36	169.63
24	163,759.28	1,148,243.68	169.63
25	163,092.96	1,146,358.02	169.63
26	162,473.24	1,144,567.84	169.63
27	161,944.85	1,142,744.03	169.63
28	161,475.95	1,140,922.83	169.63
29	160,932.44	1,138,913.62	169.63
30	160,425.22	1,136,904.03	169.63
31	159,872.42	1,134,904.36	169.63
32	159,278.22	1,133,014.07	169.63
33	158,797.59	1,131,074.05	169.63
34	158,397.91	1,129,148.45	169.63
35	157,931.37	1,127,238.20	169.63
36	157,496.46	1,125,329.36	169.63
37	156,756.50	1,123,425.81	169.63
39	156,341.22	1,120,226.19	169.63
40	156,030.21	1,118,936.19	169.63
41	155,708.52	1,117,517.94	169.77
42	155,392.48	1,116,072.74	169.77
43	155,014.53	1,114,594.79	169.60
44	155,284.70	1,113,111.83	169.60
45	154,800.11	1,111,584.77	169.60
46	153,766.74	1,110,097.80	169.60
47	154,050.69	1,108,671.16	169.60
48	153,645.17	1,107,204.14	169.60
49	152,125.20	1,105,974.60	169.60
50	150,750.55	1,105,079.87	169.60
51	150,223.83	1,103,921.42	169.60

Notes:
Coordinate system: New York State Plane Lambert projection, Long Island Zone, NAD 83, units in feet.
Coordinates: Based on scopes of work for 2001, from USAED, New York.
Note that profile lines are numbered from east to west, with J51 located immediately east of Jones Inlet.
Azimuth in degrees relative to true north.

Table 13
Monuments: Fire Island

Profile Number	Northing	Easting	Azimuth
1	166,483.60	1,177,094.00	159
2	166,489.00	1,179,345.00	178
3	166,494.40	1,181,595.00	159
4	166,730.60	1,184,390.00	178
5	166,966.90	1,187,184.00	159
6	167,298.70	1,189,755.00	175
7	167,630.50	1,192,325.00	159
8	168,306.80	1,194,977.00	173
9	168,983.20	1,197,629.00	159
10	169,542.50	1,199,891.00	170
11	170,101.80	1,202,154.00	159
12	170,815.90	1,204,667.00	159
13	171,157.20	1,205,776.00	159
14	171,541.40	1,207,090.00	159
15	171,932.50	1,208,285.00	159
16	172,392.40	1,209,649.00	159
17	172,774.70	1,210,826.00	159
18	173,087.40	1,212,030.00	159
19	173,456.90	1,212,992.00	159
20	173,915.90	1,214,376.00	159
21	174,199.90	1,215,275.00	159
22	174,445.80	1,216,239.00	159
23	174,775.10	1,217,360.00	159
24	175,070.70	1,218,827.00	159
25	175,427.30	1,220,156.00	159
26	175,790.70	1,221,346.00	159
27	176,126.60	1,222,457.00	159
28	176,540.20	1,223,792.00	159
29	176,815.70	1,224,548.00	159
30	177,406.20	1,226,277.00	159
31	177,932.10	1,227,685.00	159
32	178,245.20	1,228,734.00	159
33	178,992.90	1,231,613.00	159
34	179,613.40	1,233,707.00	159
35	180,259.80	1,235,722.00	159
36	180,742.50	1,237,559.00	159
37	181,221.70	1,238,790.00	159
38	181,547.00	1,239,852.00	159
39	181,991.20	1,241,331.00	159
40	182,312.40	1,242,422.00	159
41	182,800.20	1,243,822.00	159
42	183,198.00	1,244,973.00	159
43	183,746.50	1,246,276.00	159

(Continued)

Table 13 (Concluded)			
Profile Number	Northing	Easting	Azimuth
44	184,046.20	1,247,043.00	159
45	184,632.20	1,248,497.00	159
46	185,262.70	1,249,876.00	159
47	185,757.40	1,250,928.00	159
48	186,296.50	1,252,423.00	159
49	186,914.90	1,253,960.00	159
50	187,176.80	1,254,638.00	159
51	187,769.60	1,256,049.00	159
52	188,220.90	1,256,983.00	159
53	188,574.50	1,257,779.00	159
54	189,060.80	1,258,777.00	159
55	189,862.70	1,260,422.00	159
56	190,541.10	1,261,723.00	159
57	191,032.30	1,262,697.00	159
58	191,565.70	1,263,714.00	159
59	193,127.20	1,266,814.00	159
60	194,718.90	1,269,898.00	159
61	196,335.10	1,273,007.00	159
62	197,946.30	1,276,117.00	159
63	199,344.10	1,278,977.00	159
64	200,666.70	1,281,864.00	159
65	201,755.50	1,284,222.00	159
66	202,883.80	1,286,564.00	159
67	203,842.50	1,288,632.00	159
68	204,706.40	1,290,735.00	159
69	205,501.10	1,292,655.00	159
70	206,325.90	1,294,561.00	159
71	208,023.70	1,298,571.00	159
72	209,886.00	1,302,770.00	159
73	210,495.70	1,304,328.00	159
74	211,106.10	1,305,734.00	159
75	211,969.00	1,307,345.00	159
76	212,558.80	1,308,911.00	159
77	214,320.60	1,312,891.00	159
78	215,331.10	1,315,913.00	159
79	216,603.80	1,318,843.00	159
80	217,656.80	1,321,197.00	159
81	218,571.60	1,323,601.00	159
82	218,927.00	1,325,047.00	159
83	219,682.10	1,327,365.00	159
84	220,310.00	1,328,557.00	159

Notes:
Coordinate system: New York State Plane Lambert projection, Long Island Zone, NAD 83, units in feet.
Coordinates: Provided by survey contractor Offshore and Coastal Technologies, Inc. – East Coast, Chadds Ford, PA.
Azimuth in degrees relative to true north.

Table 14 Monuments: Westhampton				
ACNYMP Profile Number	OCTI Profile Number[1]	Northing	Easting	Azimuth
1	ps1	220,397.10	1,330,053.00	159
2	ps2	221,060.20	1,331,311.00	159
3	ps3	221,724.80	1,332,571.00	159
4	ps4	222,227.00	1,334,218.00	159
	ps5	222,503.05	1,334,915.50	159
5	ps6	222,779.10	1,335,613.00	159
740	ps7	223,136.40	1,336,217.00	159
5.1	ps8, WI9	223,174.70	1,336,531.49	159
5.2	ps9, WI8	223,424.70	1,337,182.50	159
5.3	ps10, WI7	223,639.70	1,337,743.50	159
6	ps11, 720	223,853.40	1,338,084.00	159
6.1	ps12, W6	223,842.80	1,338,182.58	159
6.2	ps13, WI6	224,194.75	1,339,249.51	159
7		224,372.60	1,339,693.00	159
7.1	ps14, 700	224,532.75	1,339,966.16	159
WI5	ps15, WI5	224,629.77	1,340,466.52	159
7.2	ps16, WI4	224,864.78	1,341,126.53	159
8		224,884.80	1,341,201.00	159
680	ps17, 680	225,206.54	1,341,898.85	159
9		225,467.00	1,342,688.00	159
9.1	ps18, WI3	225,469.81	1,342,826.54	159
9.2	ps19, WI2	225,644.82	1,343,296.55	159
	ps20	225,822.90	1,344,099.97	159
10		225,965.10	1,344,213.00	159
10.1	ps21	226,234.84	1,344,887.56	159
11	ps22	226,376.50	1,345,765.00	159
11.1	ps23	226,794.07	1,346,168.87	159
	ps24	227,142.20	1,347,105.32	159
	ps25	227,559.96	1,348,230.25	159
12		227,037.70	1,347,724.00	159
12.1	ps26	227,768.93	1,348,793.96	159
13	ps27	227,823.60	1,349,644.00	159
590	ps28	228,325.98	1,350,293.01	159
13.1	ps29	228,743.78	1,351,418.05	159
14		228,702.10	1,352,092.00	159
	ps30	229,044.14	1,352,159.53	159
	ps31	229,494.67	1,353,271.74	159
14.1	ps32	229,705.82	1,353,793.00	159
15		229,558.10	1,354,429.00	159
15.1	ps33	230,004.95	1,354,560.94	159

(Continued)

Table 14 (Concluded)

ACNYMP Profile Number	OCTI Profile Number[1]	Northing	Easting	Azimuth
	ps34	230,145.46	1,355,144.25	159
	ps35	230,332.82	1,355,922.01	159
16		230,393.40	1,356,834.00	159
	ps36	230,539.04	1,356,778.09	159
17		231,203.30	1,358,613.00	159
18	ps37	231,893.60	1,360,445.00	159
19		232,462.90	1,362,533.00	159
20	ps38	233,402.70	1,364,482.00	159
21		234,251.00	1,366,780.00	159
22		235,158.30	1,369,048.00	159
23		236,070.90	1,371,334.00	159
24		236,925.30	1,373,628.00	159
25		237,652.80	1,375,427.00	159
26		238,320.80	1,377,257.00	159
27		239,202.80	1,379,544.00	159
28		240,062.20	1,381,858.00	159
29		241,025.50	1,384,235.00	159
30		242,021.70	1,386,592.00	159
31		242,572.00	1,388,075.00	159
32		243,145.40	1,389,567.00	159
33		243,808.80	1,391,011.00	159
34		244,520.40	1,393,055.00	159
35		245,472.60	1,395,000.00	159
36		245,840.00	1,395,916.00	159
37		246,334.00	1,397,132.00	159
38		246,896.10	1,398,420.00	159
38.1	w50	247,200.00	1,399,400.00	159
39		247,370.50	1,399,747.00	159
39.1	w49	247,600.00	1,400,400.00	159
40		247,824.80	1,401,030.00	159
40.1	w48	247,990.00	1,401,600.00	159
41		248,165.40	1,402,161.00	159
41.1	w47	248,456.00	1,402,620.00	159
41.2	w46	248,726.00	1,403,090.00	159
42		248,996.10	1,403,560.00	159
43		249,331.30	1,404,307.00	159
43.1	W45	249,410.00	1,404,700.00	159
44		249,496.00	1,405,109.00	159

Notes:
Coordinate system: New York State Plane Lambert projection, Long Island Zone, NAD 83, units in feet.
Coordinates: Provided by OCTI, crosschecked with USAED, New York, 2001 scope of work. OCTI numbers used for profiles collected for Westhampton Interim Project in 1999, 2000, 2001. Note numbering discrepancy: OCTI W6 is ACNYMP W6.1.
Azimuth in degrees relative to true north.
[1] OCTI = Offshore and Coastal Technologies, Inc. – East Coast, Chadds Ford, PA.

Table 15
Monuments: Ponds

Profile Number	Northing	Easting	Azimuth
1	249,417.80	1,406,433.00	159
sh1	249,570.00	1,406,950.00	159
2	249,716.50	1,407,477.00	159
sh2	250,160.00	1,407,970.00	159
3	250,613.40	1,408,463.00	159
4	251,612.50	1,411,082.00	159
5	252,788.00	1,413,674.00	159
6	253,814.00	1,415,773.00	159
7	254,840.70	1,417,874.00	159
8	255,569.70	1,419,904.00	159
9	256,545.80	1,421,839.00	159
10	257,793.70	1,424,616.00	159
11	259,129.60	1,427,356.00	159
12	260,088.10	1,429,622.00	159
13	261,274.20	1,431,840.00	159
14	262,803.90	1,434,893.00	159
15	264,264.80	1,437,967.00	159
16	265,189.10	1,439,764.00	159
17	266,199.10	1,441,516.00	159
18	267,288.80	1,443,699.00	159
19	267,845.30	1,444,850.00	159
20	268,477.40	1,445,966.00	159
21	269,024.50	1,447,301.00	159
22	269,825.90	1,448,527.00	159
23	270,673.30	1,450,396.00	159
24	271,656.70	1,452,213.00	159
25	272,653.60	1,454,028.00	159
26	273,657.10	1,455,828.00	159
27	274,298.90	1,456,968.00	159
28	274,865.10	1,458,145.00	159
29	275,445.20	1,459,313.00	159
30	276,118.00	1,460,440.00	159
31	277,255.30	1,462,590.00	159
32	278,506.30	1,464,688.00	159
33	279,376.00	1,466,462.00	159
34	280,617.00	1,468,482.00	159
35	281,134.00	1,469,584.00	159
36	281,688.10	1,470,666.00	159
37	282,335.10	1,471,717.00	159
38	282,831.70	1,472,811.00	159
39	283,398.40	1,474,345.00	159
40	284,270.10	1,476,032.00	159
41	285,365.90	1,477,648.00	159
42	286,701.20	1,480,517.00	159

Notes:
Coordinate system: New York State Plane Lambert projection, Long Island Zone, NAD 83, units in feet.
Coordinates: Provided by survey contractor Offshore and Coastal Technologies, Inc. – East Coast, Chadds Ford, PA.
Azimuth in degrees relative to true north.

Table 16
Monuments: Montauk

Profile Number	Northing	Easting	Azimuth
1	288,224.20	1,483,354.00	159
2	288,753.60	1,484,730.00	159
3	289,570.40	1,486,178.00	159
4	290,288.60	1,487,565.00	159
5	291,314.70	1,488,836.00	159
6	291,946.60	1,490,803.00	159
7	292,837.00	1,492,643.00	159
8	294,607.50	1,495,927.00	159
9	296,265.90	1,499,243.00	159
10	298,081.00	1,502,499.00	159
11	298,941.30	1,504,450.00	159
12	299,928.00	1,506,355.00	159
13	300,989.00	1,508,908.00	159
14	302,121.80	1,511,430.00	159
15	303,353.10	1,514,439.00	159
16	304,904.00	1,517,323.00	159
17	305,719.30	1,519,098.00	159
18	306,563.40	1,520,863.00	159
19	307,339.30	1,522,813.00	159
20	308,237.10	1,524,495.00	159
21	309,315.10	1,526,780.00	159
22	310,418.70	1,529,042.00	159
23	311,682.20	1,531,269.00	159
24	312,584.80	1,533,159.00	159
25	313,583.30	1,534,999.00	159
26	314,257.70	1,536,310.00	159
27	315,001.80	1,537,595.00	159
28	316,414.30	1,540,343.00	159
29	317,864.20	1,543,031.00	159
30	318,964.60	1,544,985.00	159
31	320,008.50	1,547,068.00	159
32	321,050.30	1,549,102.00	159
33	321,708.30	1,550,902.00	159
34	322,466.60	1,552,663.00	159
35	323,649.10	1,555,828.00	159
36	324,873.40	1,558,742.00	159
37	325,216.60	1,561,481.00	154
38	326,070.00	1,563,143.00	154
39	327,630.90	1,565,973.00	154
40	328,915.60	1,568,895.00	154
41	331,326.10	1,571,000.00	128
42	334,199.20	1,573,587.00	128
43	336,540.30	1,575,048.00	128

Notes:
Coordinate system: New York State Plane Lambert projection, Long Island Zone, NAD 83, units in feet.
Coordinates: Provided by survey contractor Offshore and Coastal Technologies, Inc. – East Coast, Chadds Ford, PA.
Azimuth in degrees relative to true north.

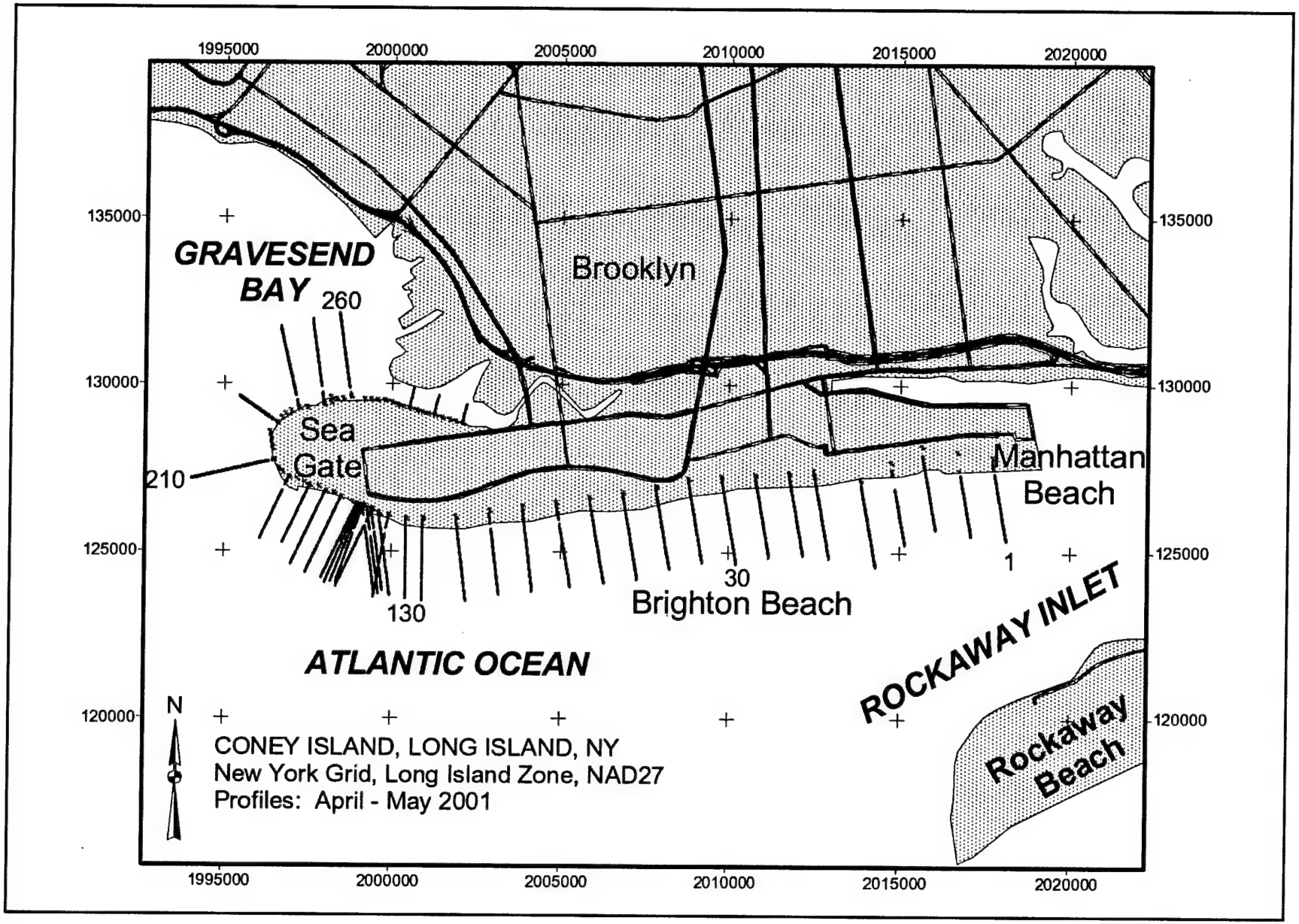


Figure 3. Coney Island profiles. Shoreline shown is NOAA medium resolution digital vector shorline, streets from Dynamap/2000®, coordinates are NAD27

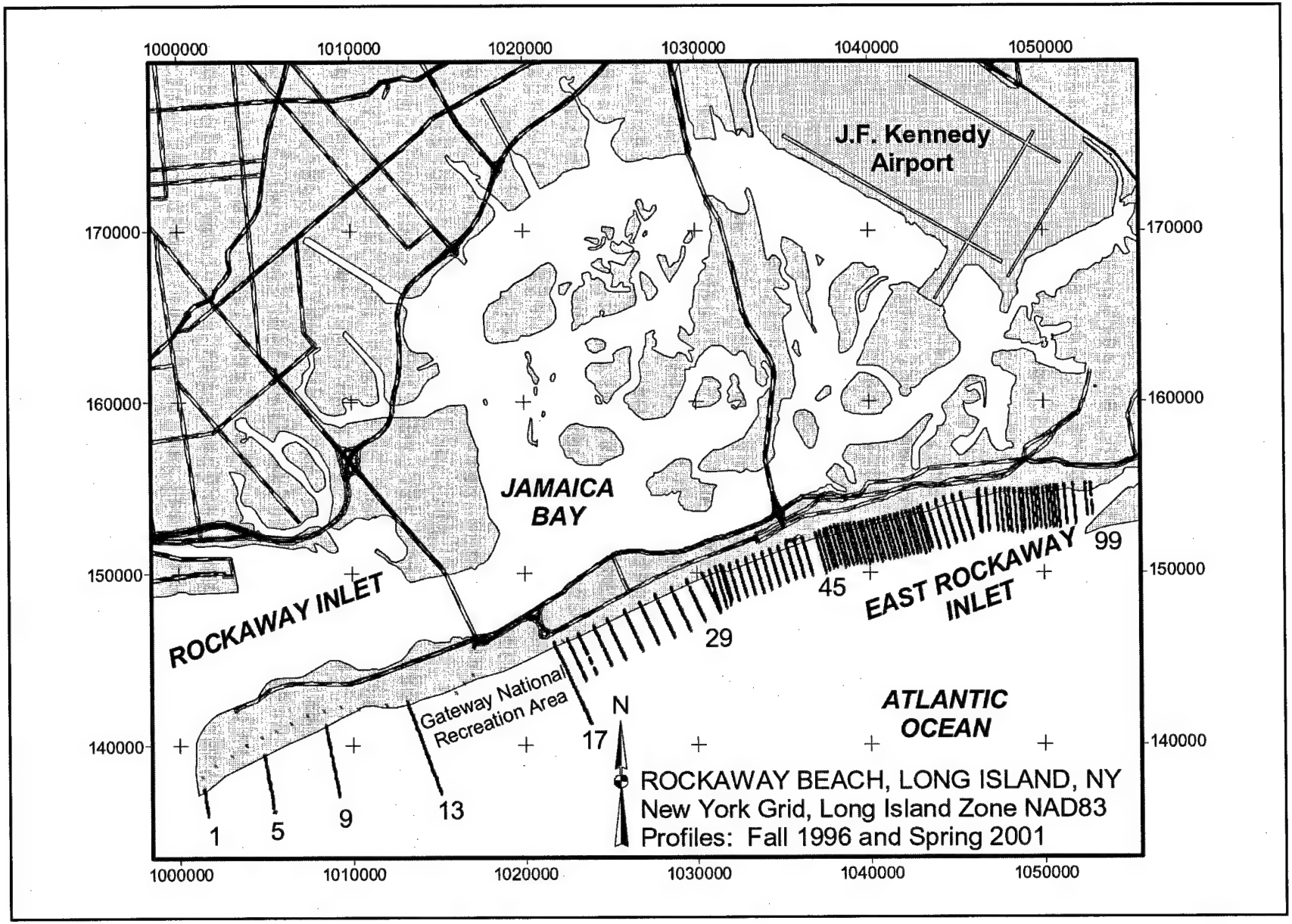


Figure 4. Rockaway Beach profiles, coordinates are NAD83

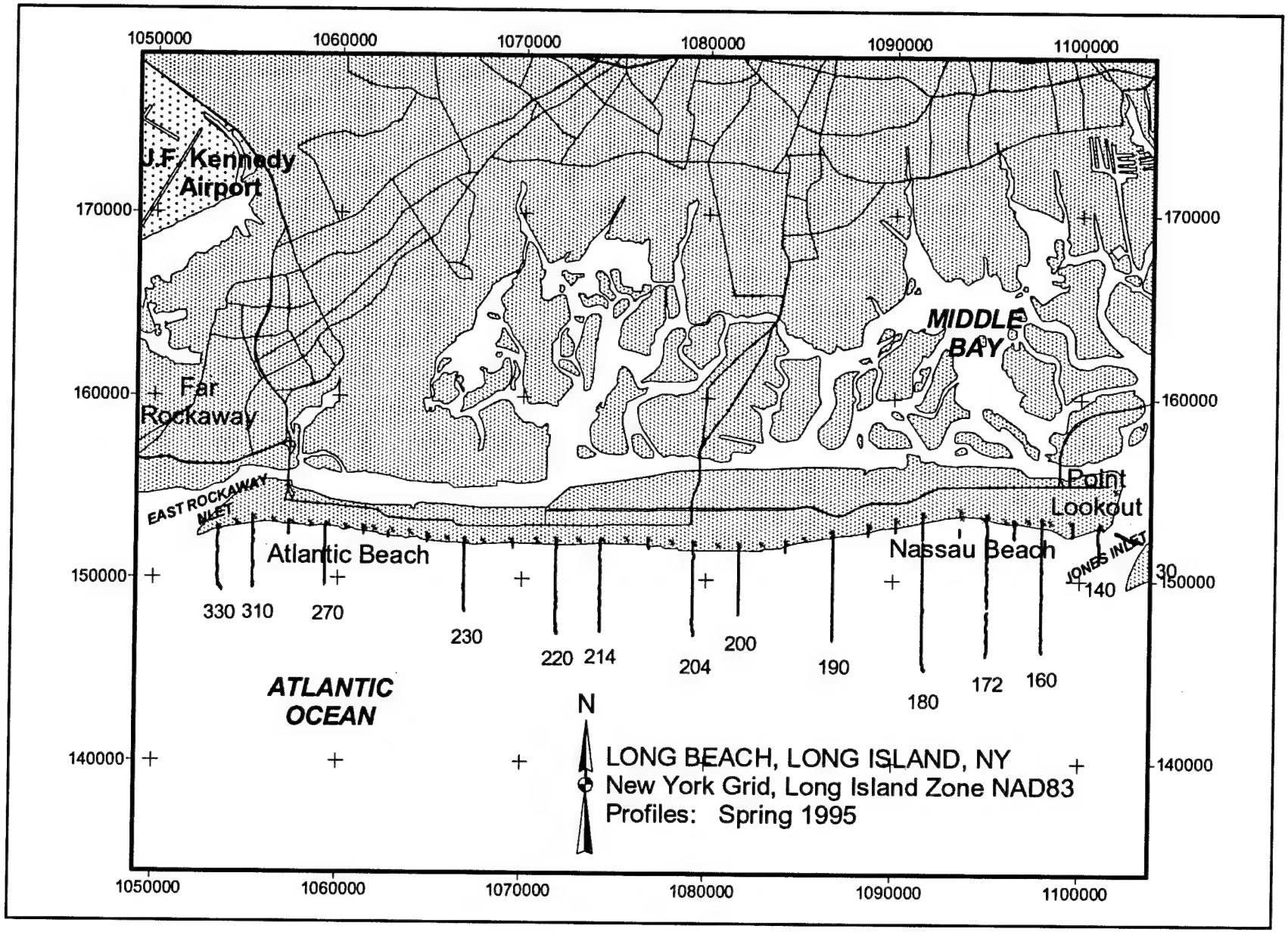


Figure 5. Long Beach profiles

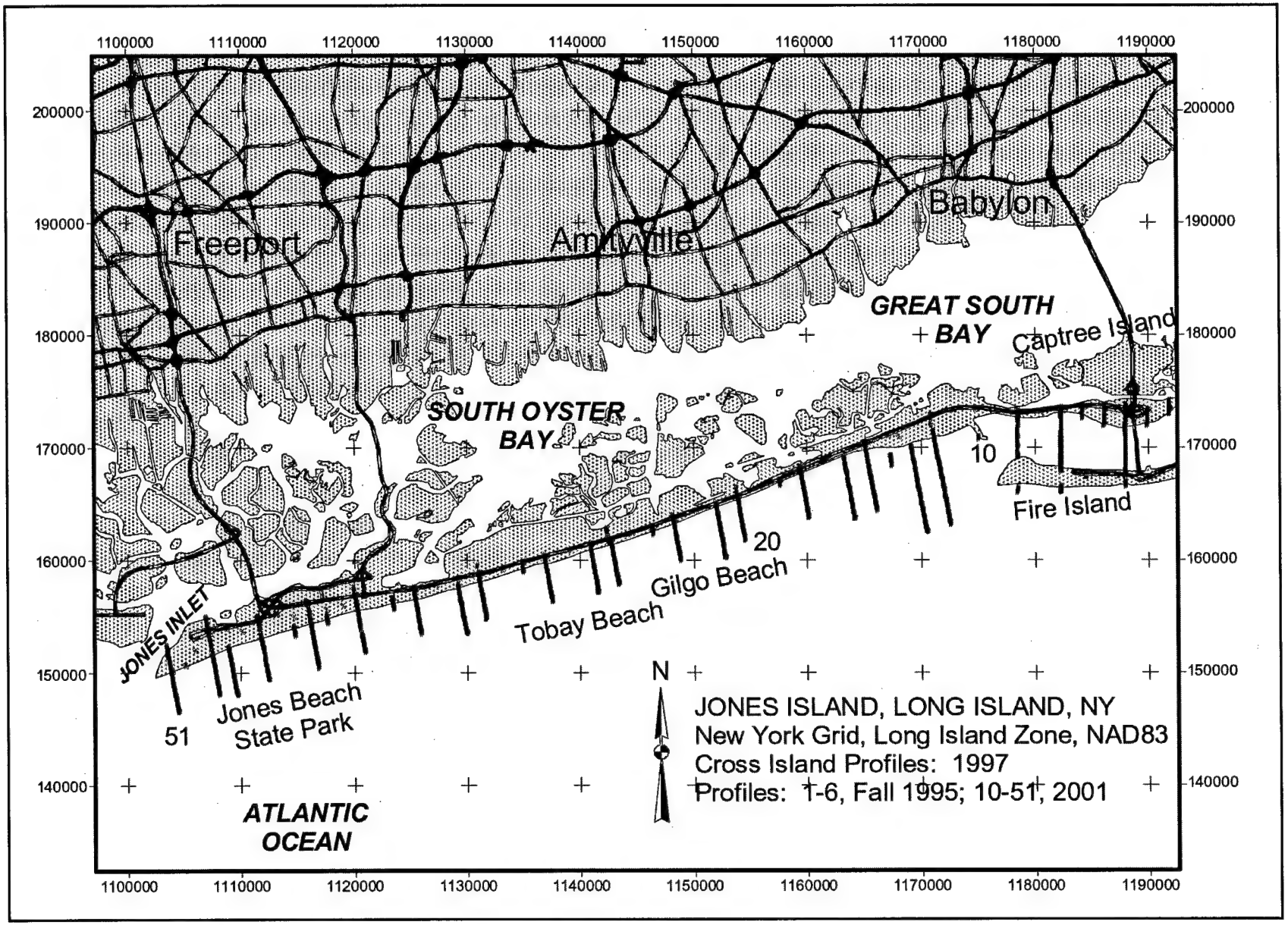
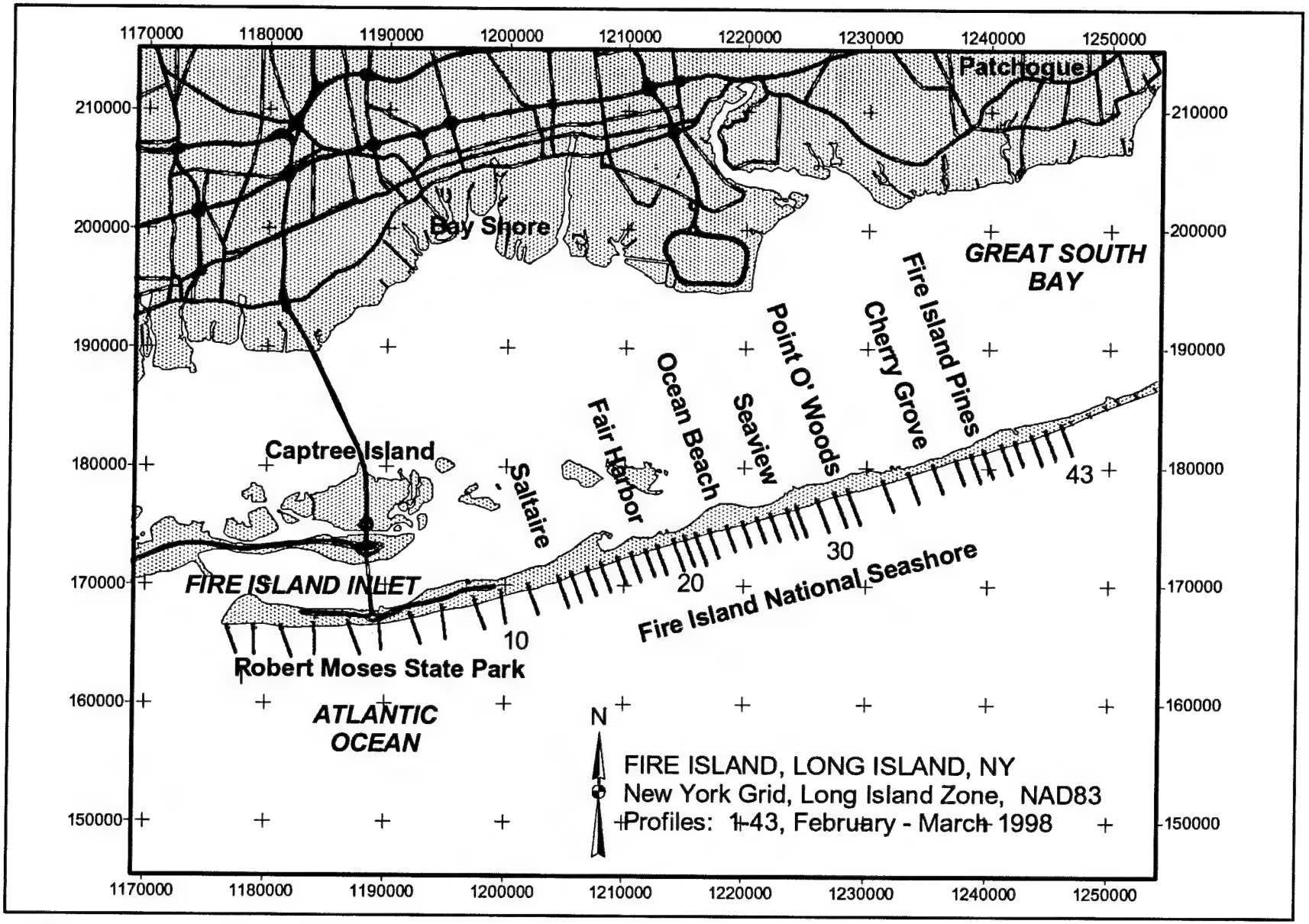
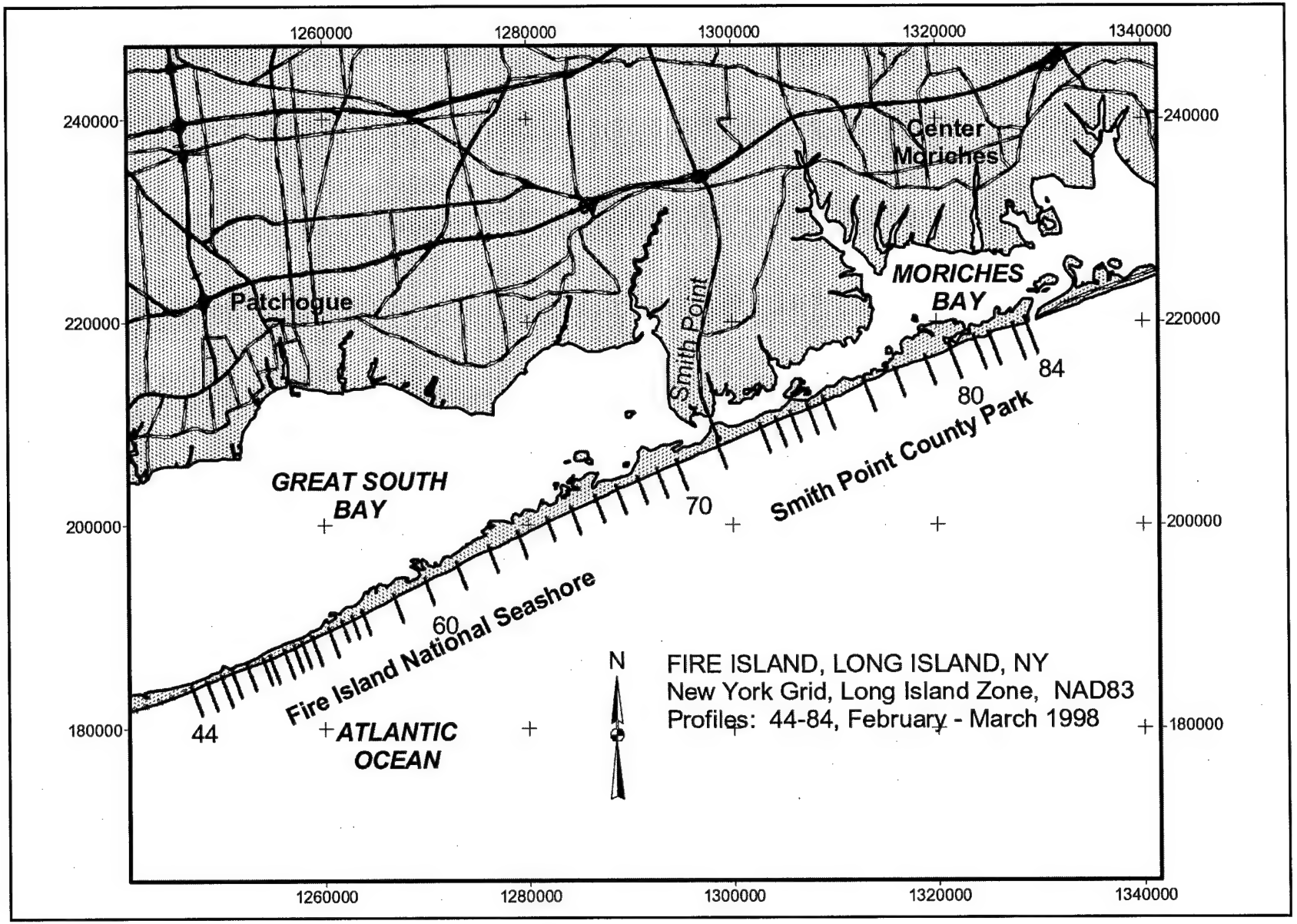


Figure 6. Jones Beach profiles



a. West zone

Figure 7. Fire Island profiles (Continued)



b. East zone

Figure 7. (Concluded)

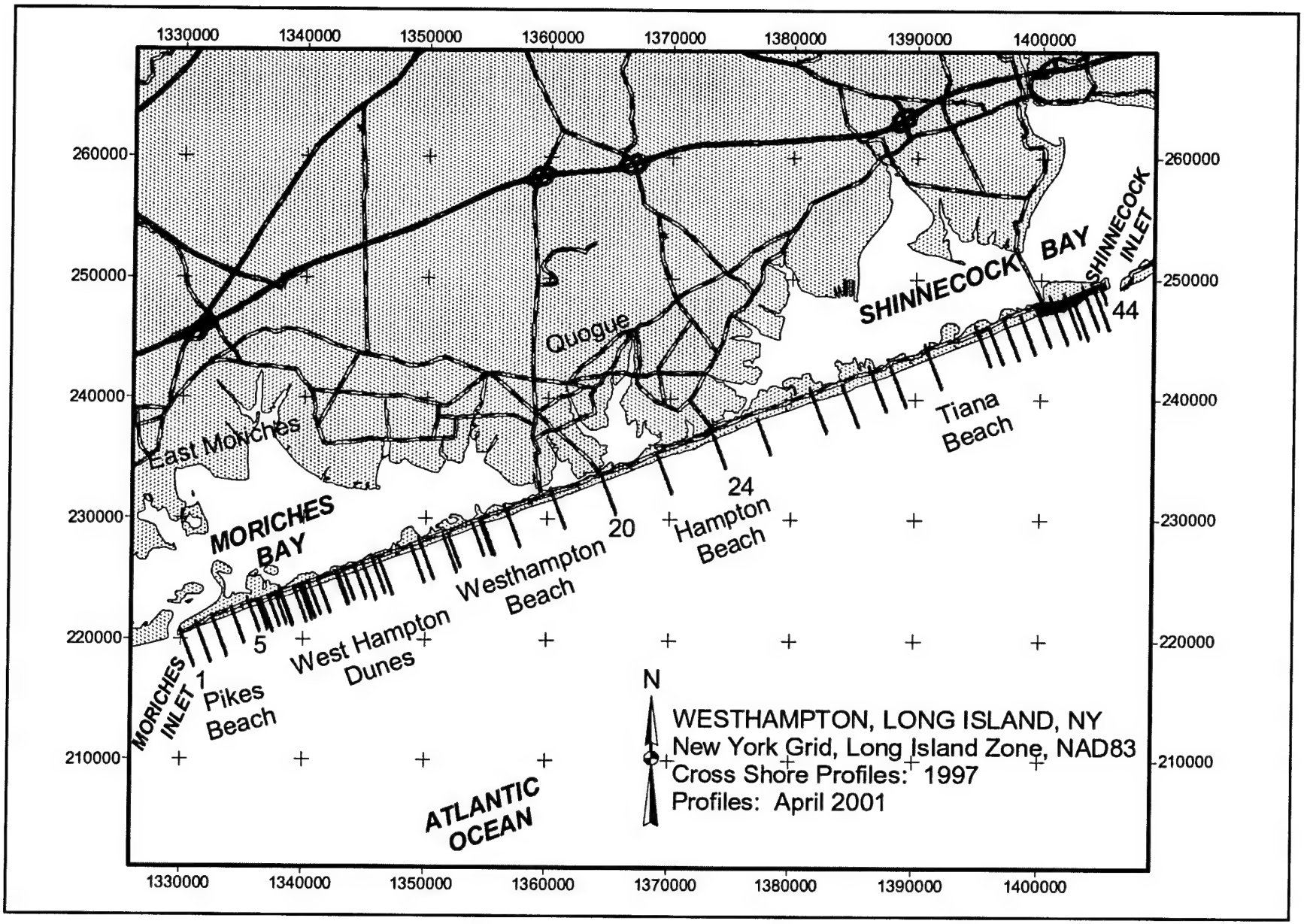


Figure 8. Westhampton Beach profiles

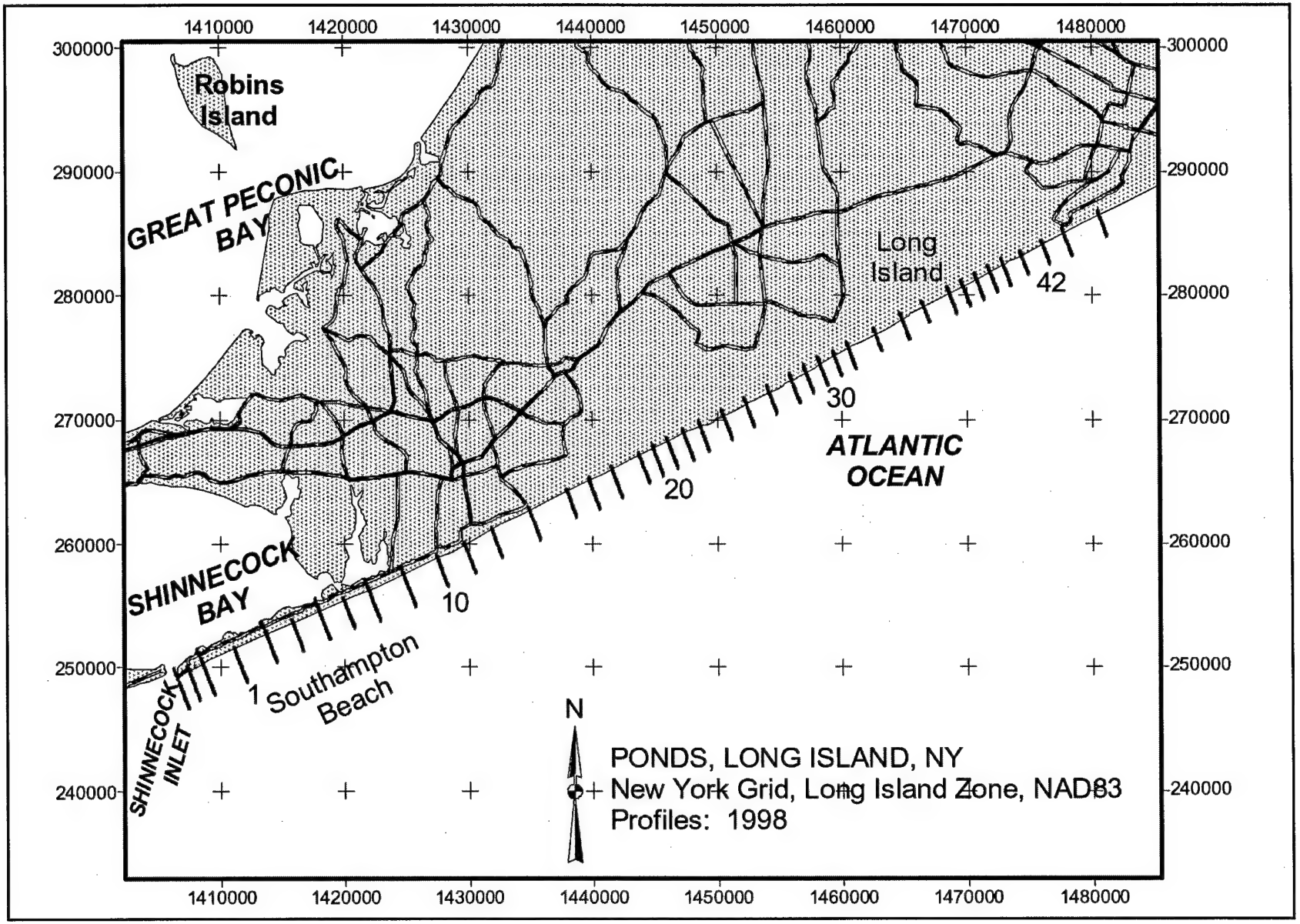


Figure 9. Ponds profiles. Note the NOAA medium resolution digital vector shoreline does not include the coastal ponds, although some are open to the Atlantic Ocean on irregular intervals

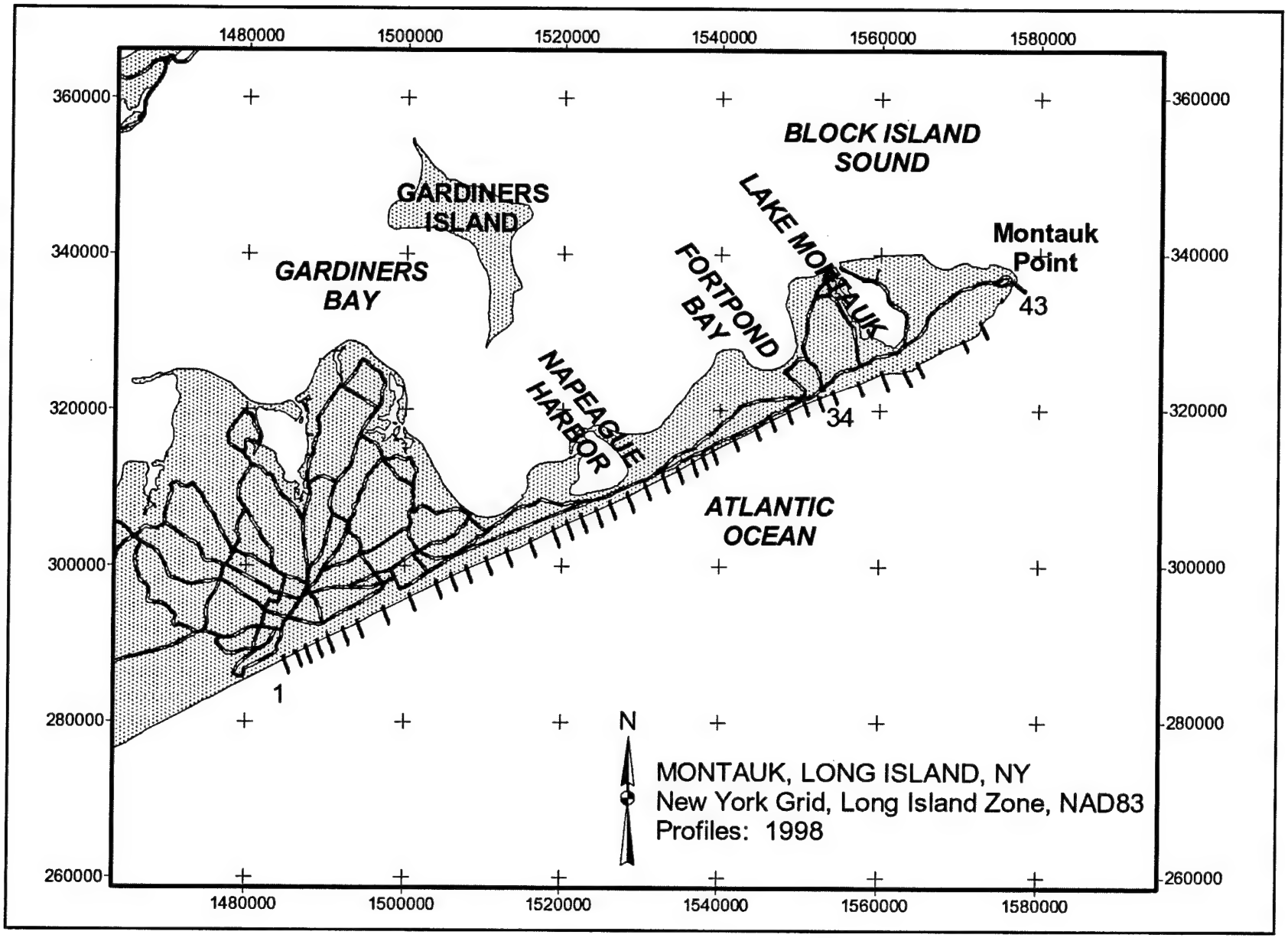


Figure 10. Montauk profiles

3 Quality Control Procedures

Overview

Quality control and verification of the ACNYMP profile data evolved into a five-stage process:

a. *Stage 1.* Coastal specialists at the New York District conducted an initial screening of the deliverables supplied by survey contractors to insure that contract requirements were fulfilled and coverage was as specified. This inspection included checking the spacing of data points and ensuring that the azimuth and location of lines was correct. This inspection was conducted for each survey set individually and typically did not include a comparison with surveys from other dates. The 1995 – 1997 data were processed and plotted with custom BASIC computer programs. The later surveys were examined in EXCEL spreadsheet programs and via plotting in BMAP software. After the initial inspection, the New York District transmitted the data files electronically to CHL in Vicksburg. Some of the data was sent in the form of ASCII files, some as BMAP project files, and some in the USACE ISRP format.

b. *Stage 2.* The two-dimension (2-D) (x-y) and three-dimension (3-D) (x-y-z) files were plotted and inspected in detail at CHL.

c. *Stage 3.* The New York District supplied 3-D data to a contractor, Science Applications International Corporation (SAIC), Newport, RI, to incorporate into a graphical data display and distribution system titled "CoastalView." For quality control inspection, specialists at the New York District and Sea Grant compared the data files on the CoastalView compact disk (CD) with the equivalent profiles organized and cataloged at CHL. SAIC and CHL conducted work on profiles simultaneously, and as a result, unexpected troubleshooting was necessary to resolve differences between the two data sets.

d. *Stage 4.* Coastal specialists from CHL, the New York District, DOS, and New York Sea Grant inspected all questionable files flagged during Stage 2 during a workshop in New York City on April 26, 2001.

e. *Stage 5.* Based on the consensus findings of the workshop, CHL made final re-evaluations and adjustments to a number of lines. In addition, 3-D files had to be created for some 1980s data that were only available in 2-D form. CHL transmitted the files back to the New York District where they were then forwarded to SAIC for use in the CoastalView CD.

Detailed Inspection and Troubleshooting (Stage 2)

Overview

At CHL, all profiles were plotted and examined by the author. Much of the initial troubleshooting effort consisted of cataloging and organizing the files. Over time, a number of different formats had been generated, and some files had to be reformatted (e.g., columns switched) before they could be checked. The digital files were imported into the BMAP plotting and analysis software (Beach Morphology and Analysis Package, Version 2.01A for Windows NT or Windows 2000 personal computers (Sommerfeld et al. 1994)). Separate projects were set up for each of the south shore reaches. Figure 11 is an example of a BMAP screen.

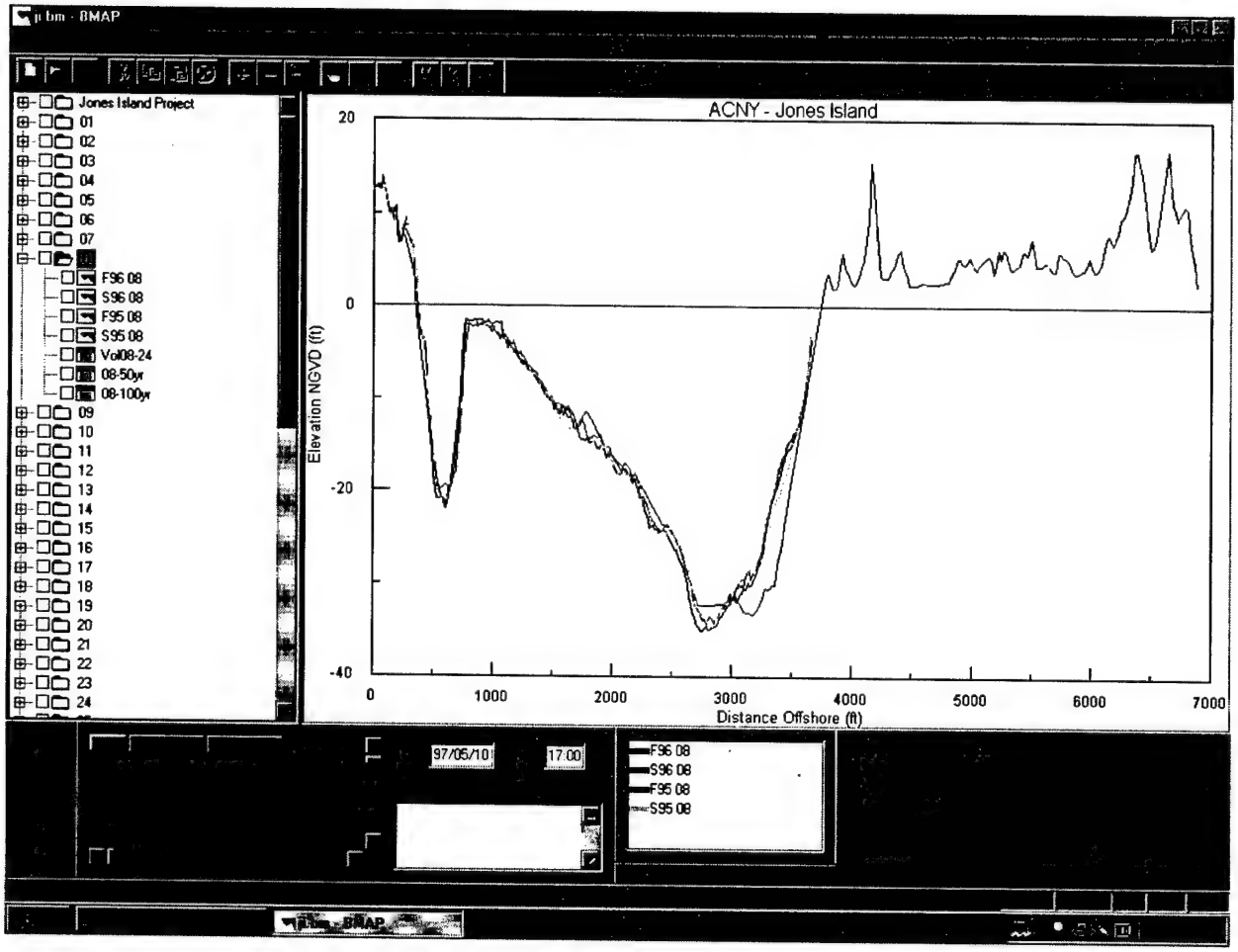


Figure 11. Example of BMAP screen showing how profiles from different dates can be organized together into location subfolders. Here, four surveys from Jones Island location 08 have been plotted together. These lines cross Fire Island Inlet, and one survey even crosses Fire Island to the Atlantic Ocean side

The main method of quality control was visual inspection of the profiles. All available surveys for each site were plotted together. This typically revealed immediately if a line was erroneous or did not belong in the group (due to incorrect line numbering). Bad profiles were flagged and, if the errors could not be resolved, were listed as "do not use" on the status sheets. Most of the long profiles were excellent quality, with close convergence offshore. The wading-depth profiles were sometimes difficult to evaluate because dunes often changed shape and height radically from survey to survey.[1] The inspection procedure included two phases:

a. Determine if the listed profile location was correct.

b. Evaluate the quality of the profile elevation and distance data.

Location verification

The first step in evaluating profile data was to ensure that the location of the profile was as stated in the file name or profile label. In 1996, a new numbering convention was adopted for the south shore profiles east of Fire Island Inlet. As a result, the 1995 Fire Island to Montauk lines had to be relabeled to ensure that they were placed in the correct locations according to the newer numbering scheme. Some 1995 Rockaway profiles also had to be renumbered. Confusion also occurred when importing some of the Westhampton Interim Project surveys from 1998, 1999, and 2000 because these used a separate labeling scheme (Table 6).

Procedure:

Step 1: Check the numbering convention table to determine if the profile uses the contemporary or an older numbering scheme.

Step 2: Import the profile into BMAP software and move it to the appropriate group for an initial visual comparison.

Step 3: If the profile clearly did not match the other ones in that group, check the numbering table, examine the file with an ASCII editor such as Microsoft Notepad, and, finally, manually move the profile back and forth among the different groups in BMAP to find its appropriate location. Only a few profiles from Rockaway Beach required the latter trial-and-error procedure.

Step 4. In a number of cases, we also plotted 3-D data (easting-northing-distance) in plan view using ArcView® or Terramodel® software. This procedure revealed where some of the 1995 and earlier profiles belonged and also showed that some profiles at the east end of Long Beach had varying azimuths (i.e., they did not overlay one another).

[1] Personal Communication, August 1997, William Grosskopf, Offshore Coastal Technologies, Inc. – East Coast, Chadds Ford, PA.

Quality control criteria – comparison with historical profiles

The second phase of the examination was to evaluate the quality of the profile data. Three conditions could occur with new profile data:

a. The profile looked good and matched the earlier profiles well, in particular with respect to offshore closure (Figure 12). **ACCEPT.**

b. The profile looked good in shape and form but its position was incorrect (i.e., it appears to have been uniformly translated vertically or horizontally) (Figures 13 and 14). **ACCEPT AND CORRECT MATHEMATICALLY.** Only a few profiles from Coney Island and Rockaway Beach needed to be translated. At Coney, the edge of the boardwalk served as an absolute reference marker, and at Rockaway, a highly peaked dune crest served as a reference. Normally, at beaches without structures, it is invalid to move a profile because almost any geomorphic feature such as a dune or sand bar that can be used as a reference might have moved over time.

c. The profile had the wrong shape or form and could not be corrected by any simple mathematical means such as linear translation. **REJECT.** Examples of these errors include:

(1) Shortening of profile. Distance from the moment to 30.00-ft water depth is over 10 percent different than the historical lines. Exception may occur in the ebb shoal area of an inlet where sand is accumulating.

(2) Rotation. One end of the profile is high while the other end is low, as defined by lying outside the limits of an envelope encompassing all the previous profiles at that monument (Figure 15). Exceptions may occur if drastic morphologic changes have occurred on the beach (i.e., dune destroyed in a storm or beach fill) or a major change is known to have occurred offshore (dredging, shoal development).

(3) Step pattern or partial translation. Part of the profile matches the historical surveys at this location but a section seems to be unusually high or low (Figure 16). To correct, sometimes the poor portion of the profile was truncated (listed in the inventory tables).

(4) Total confusion. None of the profiles at this monument appear to match (Figure 17). The region may have changed drastically morphologically (beach fill, dune destroyed, construction) or the monument may have moved or been lost. The only choice is to ensure that the monument location is correct and the field survey procedures are conducted properly. Sometimes, as more profiles were surveyed at the site over time, a pattern emerged and the erroneous lines could be identified and discarded.

(5) Field procedure or mathematical error. Results in jagged appearance (Figure 18).

Correction of minor errors in accepted profiles

Spikes. Spikes were defined as individual points that lay significantly (i.e., many feet) above or below the general trend of the curve. BMAP software allowed convenient editing to remove the offending points.

Nonascending X. This refers to duplicate points that are located the same horizontal distance from the origin but have only a minor vertical change, typically 0.1 ft. Survey contractor Offshore and Coastal Technologies (OCTI) explained that occasionally the total station could not achieve a solid fix on a location and the measurement would be repeated. Therefore, the second point was the more trustworthy measurement. When this situation occurred in the ACNYMP profiles, the first pair of the nonascending X points was discarded and the second retained. This convention was mutually accepted by the ACNYMP partners after a number of discussions in 1998.

Nonascending X at seawall. At the edges of the Coney Island boardwalk or the seawall at Long Beach, a nonascending X value represented a genuine vertical feature. In this case a minor amount, such as 0.5 ft, was added to the second X value so that it would plot correctly in BMAP.

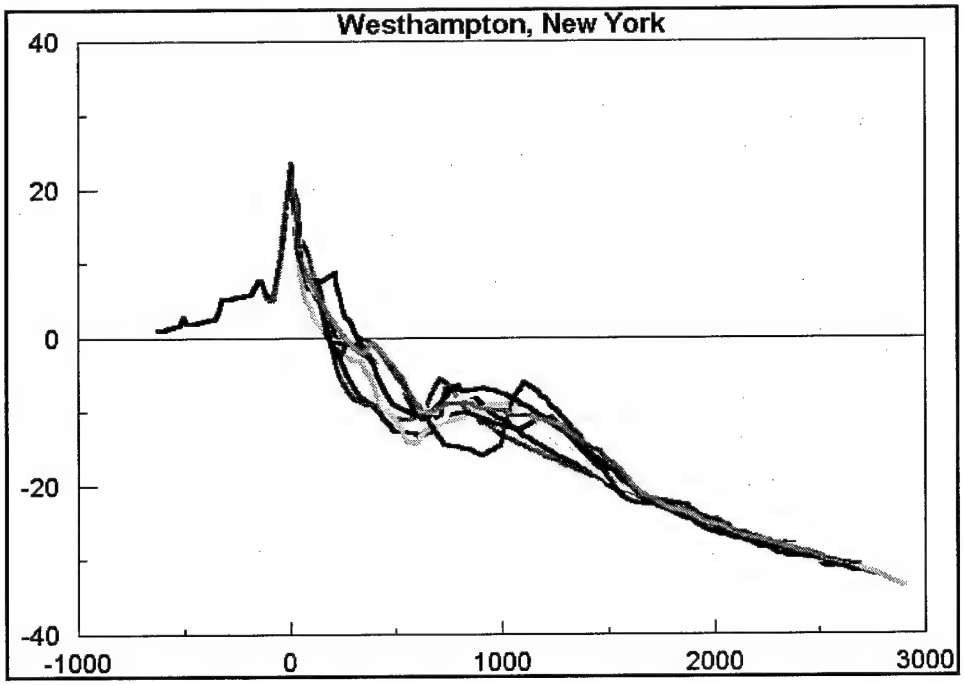


Figure 12. Westhampton Beach W3. Excellent offshore convergence between -20 to -30 ft. Confused pattern between +10 and -20 is genuine morphologic change, movement of sand bars

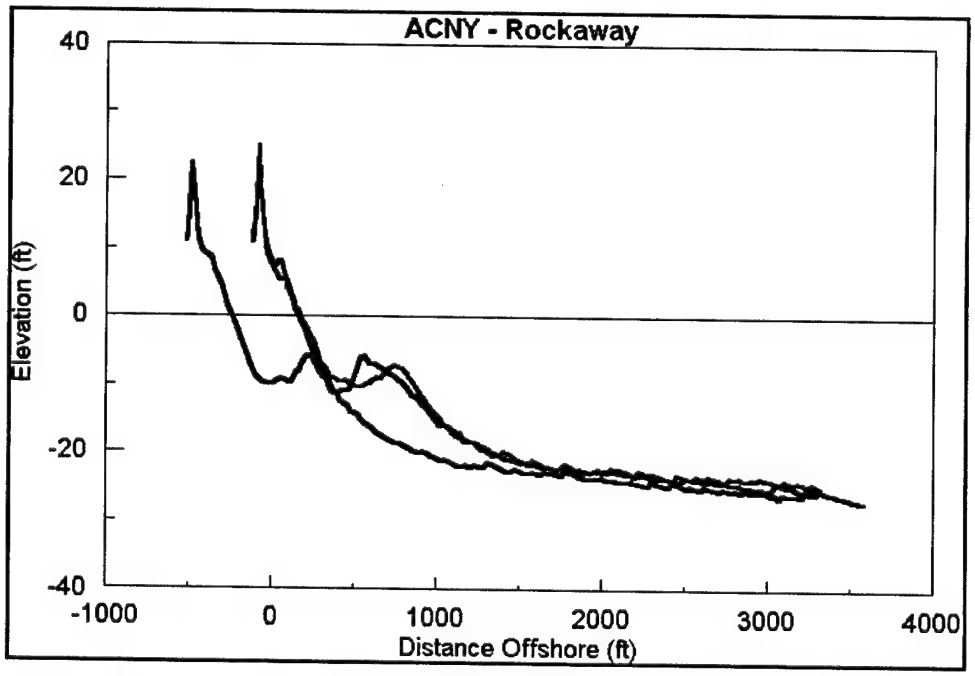


Figure 13. Rockaway Beach Rk14. Here, 1995 survey (black) has obviously been shifted horizontally about 400 ft. This can be corrected by mathematically translating profile horizontally until peaks match. Translation is only valid if there is a feature like a seawall or semi-permanent dune (as in this example) to use as reference

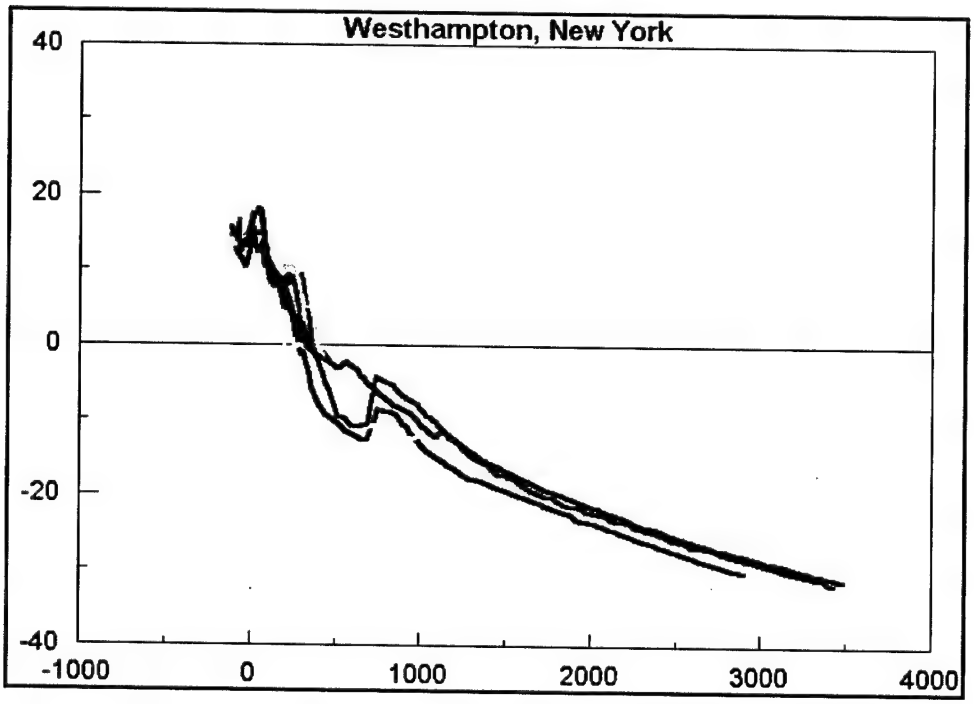


Figure 14. Westhampton Beach W6. Here, survey shown in black is anomalously low offshore. Possibly entire line has been translated vertically approximately 2 ft, but error is most pronounced from bar trough offshore. Profile is discarded and not used for any analysis

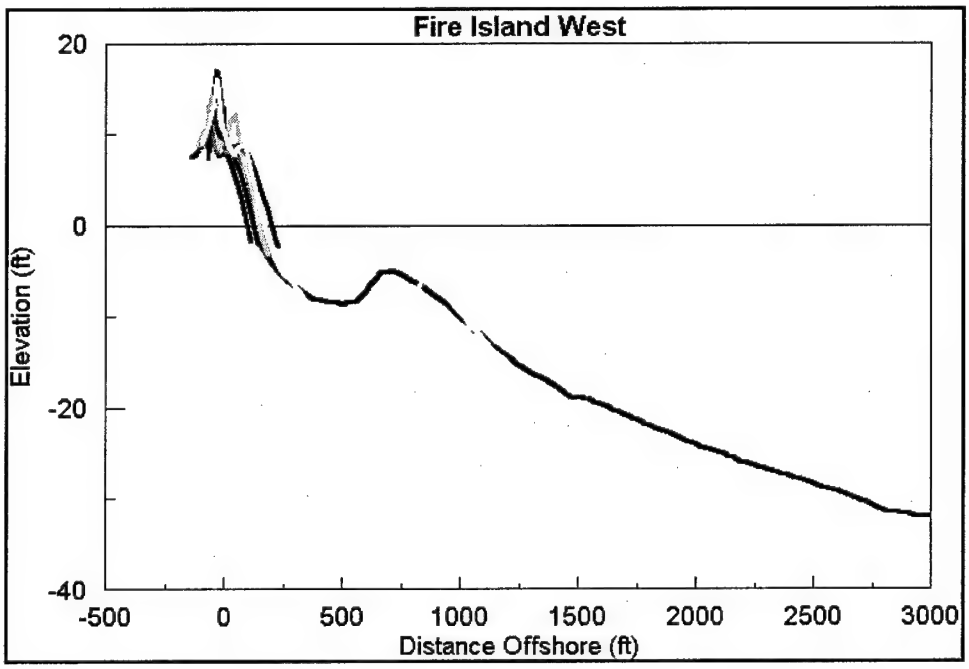


Figure 15. Fire Island FI14. Here, convergence deteriorates offshore, as if one profile has rotated. With only two long lines, it is impossible to determine if one or other is erroneous. However, upper (black) line was collected in 1995, and, based on other problems with 1995 data set, this is most likely the incorrect profile

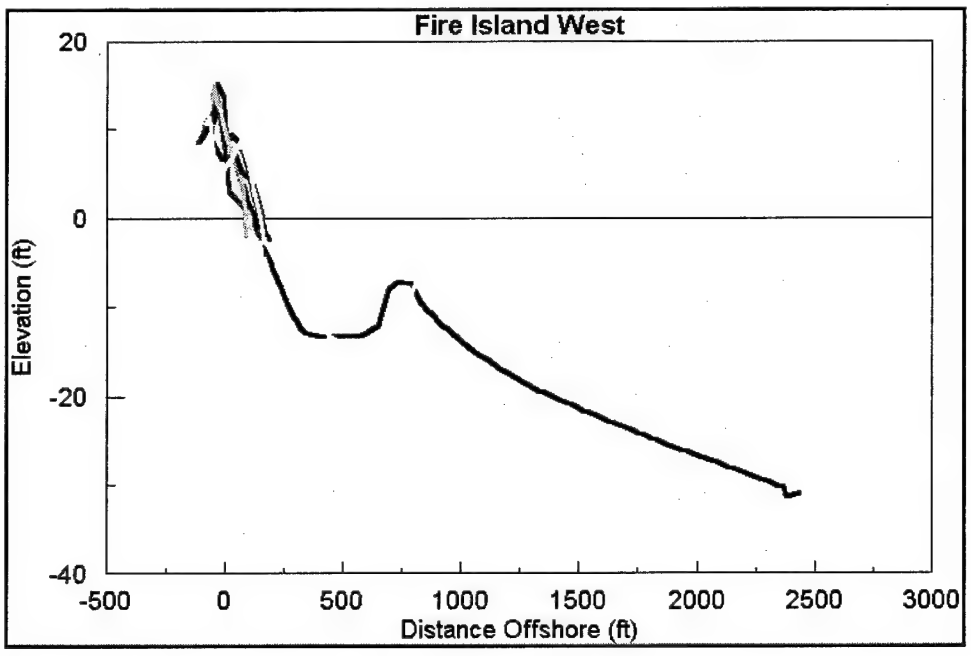


Figure 16. Fire Island FI22. Here, two long profiles match well in dune area but are clearly shifted vertically offshore. Lower (black) line is suspect based on other problems with spring 1995 data set (encountered at other locations along Fire Island)

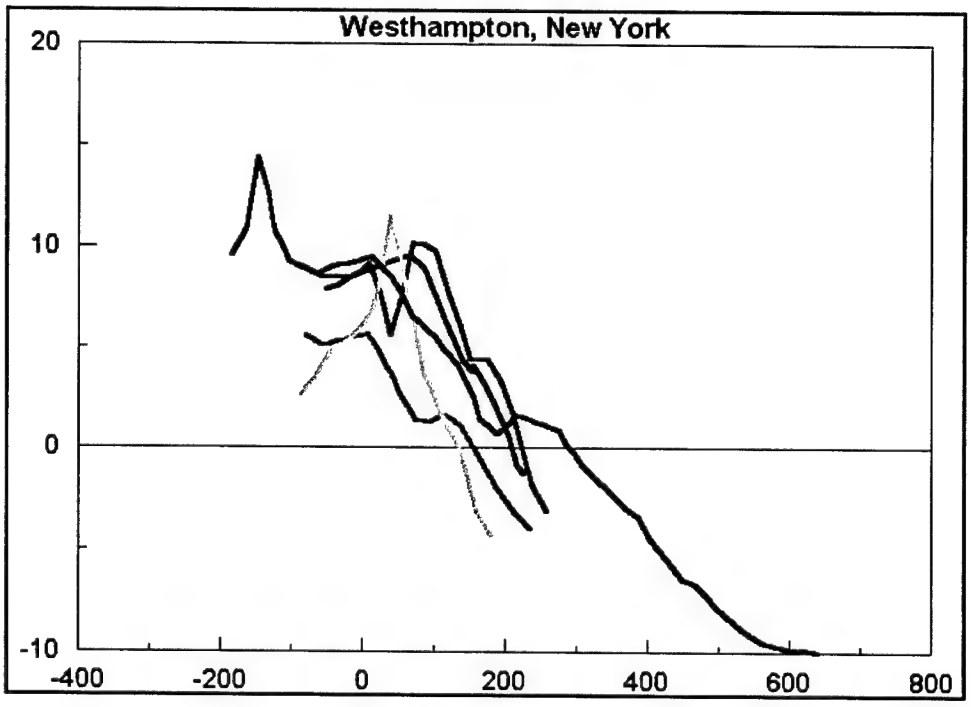


Figure 17. Westhampton Beach W44. In this confused pattern of profiles, it is impossible to determine if monument has been moved or data collected on different dunes. There is no obvious criteria to accept any of these lines and whole group should be rejected. If more data is collected later, possibly a pattern will emerge and bad lines can be distinguished

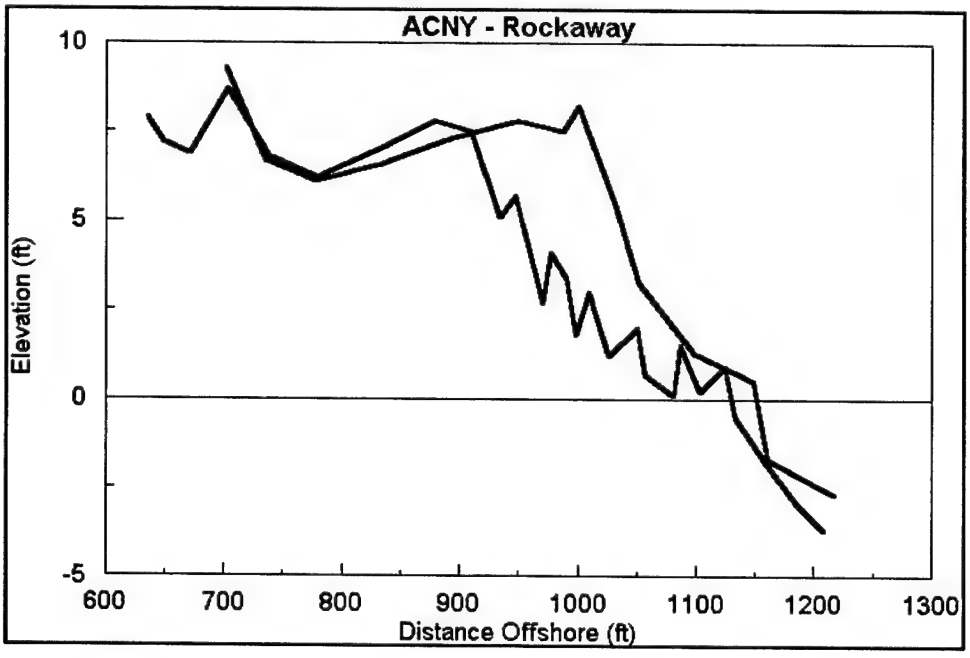


Figure 18. Rockaway Beach R8. Red (jagged) line is clearly erroneous. This is an example of data that may have been generated from TIN surface rather than drawn from the actual field measurements

Inspection and Troubleshooting of CoastalView Data CD (Stage 3)[1]

Overview

The CoastalView application was developed for the ACNYMP to display coastal data in a convenient means that could be used by coastal managers, engineers, and the general public. Development of the application was a collaborative process between the New York District and DOS. The coastal data included, but was not limited to, beach profiles and aerial photographs. The first version of the application was completed in April 1999, the second version in October 2000, and the third in October 2001. Through each version, the application was tested and areas for improvement were identified and new data added. This section details the review procedures undertaken during the development of the CoastalView application.

CoastalView versions 1 and 2

Reviewers from the New York District, DOS, and Sea Grant reviewed the first two versions of the application. Improvements they suggested were the basis for the contractor to upgrade the software. New data was added to versions 2 and 3. During the development of versions 1 and 2, minimal quality control was done on the profile data after it was inserted.

Data preparation for version 3

Before the third version of the application was released, the ACNYMP partners agreed that the profile data in the package needed to be thoroughly reviewed due to inconsistencies and erroneous profiles that had been flagged earlier at CHL. The following procedure was used:

a. The New York District personnel surveyed the existing data (1995-2000) on the CoastalView application and identified the faulty lines. This process consisted of visually inspecting each profile line and noting any inconsistencies. The x-y coordinates of each profile line were checked with the help of ArcView mapping software. The following criteria were applied to evaluate the profile survey lines:

(1) Was there similar point of closure for the profile surveys line?

(2) Noisy data with spikes or stair-step pattern.

(3) Different points of origin without a physical explanation (i.e., beach fill or dune rebuilding).

(4) Different x-y coordinates (checked by plotting the data in ArcView).

[1] Adapted from text provided by Mr. Karl Ahlen, U.S. Army Engineer District, New York.

(5) All profile lines in the Coastal View application were crosschecked with the beach profile data in BMAP provided by CHL in April 2001 and inconsistencies noted.

b. New York District personnel reviewed spring 2001 profile data submitted by contractors using the following procedures. These will also be used for all future data.

(1) Review all survey submittals against Scopes of Work (SOW) to ensure that all survey products fulfill the specifications described in the SOW. For the spring 2001 surveys, specified requirements including aerial photos, beach profile plan and sections, survey controls, and corresponding electronic data files. All survey contractors were required to include an electronic file of beach profiles in five-columns (Profile ID, Distance from Origin, Elevation, Northing, and Easting).

(2) Graphically review all beach profile lines to determine if the origin and orientation of profile lines are reasonably straight and parallel along the designated survey baseline. The profile lines were plotted on plan-view sheets to check the origin and orientation of each line. Elevation-distance of beach profiles were plotted on Excel spreadsheets and checked against historical data for consistency.

Several questionable profiles were sent back to the survey contractors for in-house or field verification. The screened beach profile data were forwarded to CHL for final review and preparation for BMAP and CoastalView input.

c. New York Sea Grant personnel also reviewed the profile data on the CoastalView Version 2. The profile data was exported and analyzed with BMAP independently from the BMAP analysis conducted at CHL. All inconsistencies were tabulated.

d. All cooperating agencies participated in a meeting on April 26, 2001 to review profile lines that CHL personnel had identified as problematic and agree on corrective measures. After the meeting, the New York District personnel assembled a list of all the problematic profile lines and recommended corrective actions and sent it to CHL for implementation.

e. CHL personnel performed the corrective actions when needed and sent the corrected files back to the New York District.

f. The data was imported into the CoastalView application. SAIC created a custom program to import the profiles directly into the ACNYMP database. The program was written for internal use only. A custom program was required because the format in which the data was provided did not follow the specified format of the DMS-import tools. The program iterates through each file that is selected by the user and does the following:

(1) Opens the file.

(2) Reads the file line by line.

(3) Parses the profile number from the first line of the file.

(4) Remaining lines are parsed into separate elevation, easting, northing, and distance values.

(5) If data were provided in NAD27 coordinates, then the northing and easting values were projected to NAD83.

(6) Records were then added to the appropriate tables in the ACNYMP.mdb file.

Following the import of the data, the profiles were displayed in the ACNYMP Profile View to identify any errors that resulted from the data import routine. All profiles were visually reviewed and many were examined in greater detail by comparing actual point data from the ACNYMP database with the values in the data files provided by the New York District.

Review of data in CoastalView version 3.0

Personnel from the New York District, DOS, New York State Department of Environmental Control (DEC), and New York Sea Grant reviewed the data in the version 3 application to verify that the data had been imported correctly:

a. Visually inspected the profile lines and tagged any profile lines that displayed the following characteristics:

(1) Unexplained phase shift.

(2) A spike in the data.

(3) No point of closure.

(4) Subaerial reach significantly different from other years.

(5) Tagged as questionable by DOS, DEC and New York Sea Grant personnel.

b. When a profile line was tagged, it was checked to see if replacement data had been sent to SAIC previously.

c. If replacement data had been sent to SAIC, compared the data within Coastal View and the data sent.

d. If the data sent were the same as the data within CoastalView, compared the data sent with the data in April 2001 BMAP files prepared by CHL.

Review of CoastalView application performance

The Application has been tested by users at USAED, DEC and NY Sea Grant on several different computers running various Windows operating systems. The testing included running the program to see if all functions performed as stated and checking for stability (i.e., if the program would crash).

Adjustment of 3-D Files (Stage 5)

Based on the results of the analysis of 2-D files in BMAP, a number of 3-D files had to be corrected. This was necessary, for example, when a line was translated vertically or horizontally or some suspicious points had been deleted. A CHL programmer made the corrections to the 3-D data files using custom FORTRAN programs.

A few surveys, particularly 1980s Coney Island, were not available in 3-D (easting-northing-elevation) form. Therefore, the 3-D data had to be recreated using the distance data, azimuth, and location of the survey monument. The conversion process used basic trigonometry, as shown in Figure 19. The relationships to compute easting and northing were:

$X = \text{dist}/\sin \Theta$

$Y = \text{dist}/\cos \Theta$

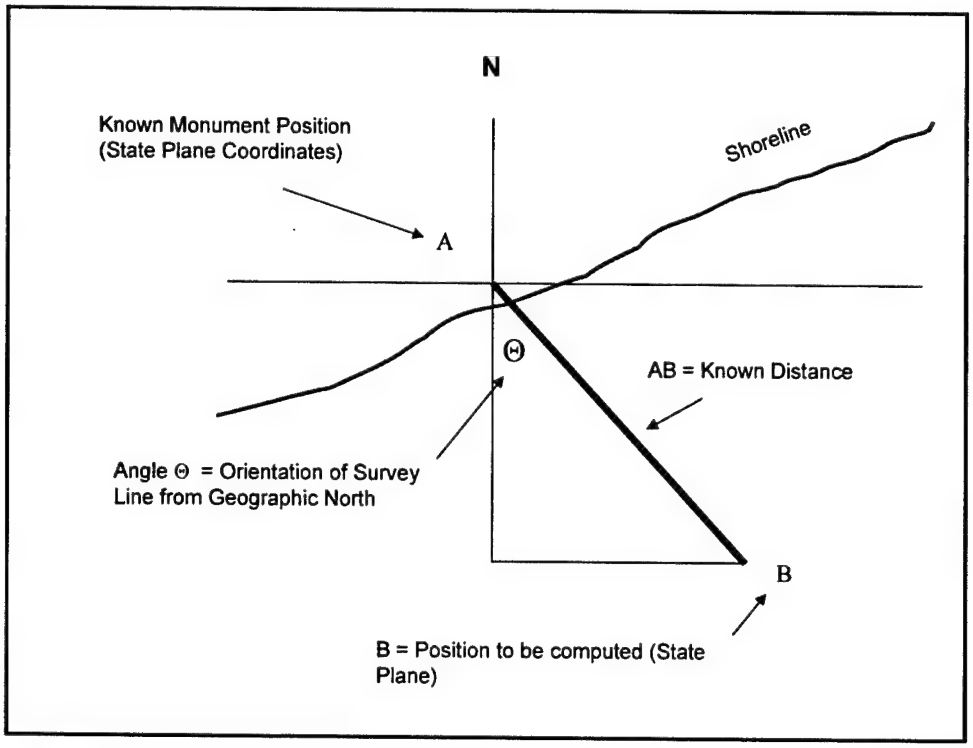


Figure 19. Computation of easting and northing based on profile azimuth, monument location, and distance

4 Evaluation and Inventory of ACNYMP Profiles

Tables 17 through 24 list all south shore Long Island profiles that have been organized and assembled into the ACNYMP databases. Table 25 is a summary tabulation listing the numbers of long, short, and bad profiles.

Table 17
Profile Inventory: Coney Island

Line	June 88	Nov. 88	Apr. 91	Mar. 93	Nov. – Dec. 95 "F95"	Jan. – Feb. 96 "W96"	Mar. – Apr. 96 "S96"	Sept. – Oct. 96 "F96"	Nov. – Dec. 96 "W97"	Mar. – Apr. 97 "S97"	Dec. 97	Mar. – Apr. 98	Oct. 98	Apr. 99	Apr. 00	May 02
1					L		L	L		L bad		L		L	L	L
2					L		L	L		L t 503		L bad		L	L	L
3					L		L	L		L t 146		L		L	L	L
4					L		L bad	L		L		L		L	L	L trun < 774
7					L		L bad	L		L		L		L	L	L
8					L		L	L		L t - 250		L		L	L	L
10	L	L t - 12	L	L	L		L	L		L t –41		L		L	L	L
20	L		L		S		L	L		L t-39		L		L	L	L
30	L	L t-6	L	L	L		L	L		L		L		L	L	L
40	L		L		S		L	L		L t –63		L		L	L	L
50	L	L	L	L	L		L	L		L t-38		L		L	L	L
60	L		L		L		L	L		L t-69		L		L	L	L
70	L	L	L	L	L		L	L		L t-72		L		L	L	L
80	L		L		L		L	L		L t-72		L		L	L	L
90	L	L	L	L	L	L	L	L		L t-43		L		L	L	L
100	L		L		L	L	L	L		L t-18		L		L	L	L

(Continued)

Table 17. (Concluded)

Line	June 88	Nov. 88	Apr. 91	Mar. 93	Nov. – Dec. 95 "F95"	Jan. – Feb. 96 "W96"	Mar. – Apr. 96 "S96"	Sept. – Oct. 96 "F96"	Nov. – Dec. 96 "W97"	Mar. – Apr. 97 "S97"	Dec. 97	Mar. – Apr. 98	Oct. 98	Apr. 99	Apr. 00	May 02
110	L	L	L	L	L	L	L	L		L		L		L	L	L
120	L		L		L	L	L	L		L t-8		L		L	L	L
130	L	L	L	L			L	L		L t-85		L		L	L	L
140	L		L	L	L	L bad	L	L	L	L t –36		L	L	L	L	L
141						L	L	L	L	L t –69		L	L	L	L bad	L
143						L	L	L	L	L t -19		L	L	L	L	L
EJ												L	L	L	L	L
WJ												L	L	L	L	L
150	L	L	L t-15	L	L	L	L	L	L	L		L	L	L	L	L
151						L	L bad	L t-35	L	L		L	L	L	L	L bad
153						L	L	L t-48	L	L	L	L	L	L	L	L
155						L	L	L	L	L		L	L	L	L	L
157						L	L	L	L	L		L	L	L	L	L
160	L		L	L	L	L	L	L	L	L	L	L	L	L	L	L
170	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
180	L		L	L	L	L	L bad	L	L	L t –55	L	L	L	L	L	L
190	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
200			L					L		L bad	L	L	L	L	L	L
210										L		L	L	L	L	L
220								L				L	L	L	L	L bad
230								L		L		L	L	L	L	L
240								L		L		L	L	L	L	L
250								L		L		L	L	L	L	L
260								L t-119		L		L	L	L		L
270								L t 55		L		L	L	L	L bad	L bad
280										L		L	L	L	L	L
290										L		L	L	L	L	L
300										L t 36		L	L	L	L	L

Notes:
Blank = No data collected
EJ, WJ = East Jetty or West Jetty
S = Shallow, wading-depth profile
L = Long profile. Lines 9-18 extend to ~ -25-ft depth
bad = Profile data available but deemed invalid because of datum shift, noisy data, or unknown problems
bad? = Unable to verify quality
t = profile translated horizontally by amount (in ft) indicated
trun = truncated before or after distance specified (in ft)

Table 18
Profile Inventory: Rockaway Beach

Line	Sept. – Oct. 1995 "F95"	Mar. – Apr. 1996 "S96"	Aug. – Sept. 1996 "F96"	June 1997	Sept. – Oct. 1997 "F97"	Apr. 1998 "S98"	Sept. 1998 "F98"	June 2000	May 2001
01	L	L	L	L	L	L			L
02		S	S						
03	L	L	L						
04		S	S						
05	L	L	L	L	L	L			L
06		S	S						
07	L	L	L						
08		S	S						
09	L bad	L	L	L	L	L trun >900			L
10		S	S						
11	L	L	L						
12	L	L	L						
13	L	L	L	L	L	L			L
14	L bad	L	L						
15	L bad	L	L						
16	L	L	L						
17	L	L	L	L bad	L	L		L	L
18		S	S					L bad?	
19				L	L	L	L	L	L
22								L	L
23								L	
24				L	L	L	L		L bad
25								L	
26								L	
27				L	L	L	L	L	L
28								L	
29								L	
30				L	L	L	L	L	L
31								L	
32								L	L
33								L	
34								L	
35				L	L	L	L	L	L
36								L	
37								L	L
38								L	
39				L	L	L	L	L	L
40								L	
41								L	L
42								L	
43				L	L	L	L	L	L
44								L	L
46								L	
47								L	L
48				L	L	L	L	L	L
49								L	
50								L	
51								L	
52								L	
53								L	L
54								L	
55				L	L	L	L	L	L
56								L	
57								L	

(Continued)

Table 18 (Concluded)

Line	Sept. – Oct. 1995 "F95"	Mar. – Apr. 1996 "S96"	Aug. – Sept. 1996 "F96"	June 1997	Sept. – Oct. 1997 "F97"	Apr. 1998 "S98"	Sept. 1998 "F98"	June 2000	May 2001
58								L	
59								L	L
60								L	
61								L	
62								L	
63								L	
64								L	
65								L	
66				L	L	L	L	L	L
67								L	
68								L	
69								L	
70								L	
71								L	L
72								L	
73							L	L	
74								L	
75								L	
76				L	L	L	L	L trun >1440	L
77								L	
78								L	
79							L	L	
80								L	
81								L	
82								L	
83				L	L	L		L	L
84							L	L	L
85								L	
85a								L	L
86								L	
87				L	L	L	L	L	L
87a								L	L
88								L	L
88a								L	L
89							L	L	L
89a								L	L
90								L	L
91								L	
92				L	L	L	L	L	L
93								L	L
95								L	
97				L	L	L	L	L	L
98								L	
99							S	L	L

Notes:
Blank = No data collected
S = Shallow, wading-depth profile
L = Long profile. Lines 9-18 extend to ~ -25-ft depth
bad = Profile data available but deemed invalid because of datum shift, noisy data, or unknown problems
bad? = Unable to verify quality
trun = line truncated before or after point indicated

Table 19
Profile Inventory: Long Beach

Line	Nov. 1991	Apr. - May 1995 S95	June 1995	Mar. – Apr. 1996 S96	Dec. 1996 – Jan. 1997 F96	Mar. 1997 S97	Sept. – Nov. 1997 F97	Mar. 1998 S98	Oct. – Nov. 1998 F98	S 2000	May 2001
120		L bad	L		L bad	L	L	L			
130		L	L	L bad	L	L	L	L	L		L trun < 926
140	L	L	L	L	L	L	L	L	L		L
150	L	L bad	L	S	L	L	S	L	L		L
160	L	L	L	L	L	L	L	L	L		L
170	L	L	L	S bad?	S bad?	S bad?	S bad?	S bad?	S bad?		L
172	L	L bad?	L	L	L	L	L	L	L		L
174	L	L	L	S	S	S	S	S			S
180	L	L bad	L	L	L bad	L	L	L	L		L
182	S	L	L	S	S	S	S	S			S
184	L	L	S	S	S	S	S	S			S
190	L	L	L	L	L	L	L	L	L		L
192	L		L								
194	L	L	L	S	S	S	S	S			S
196	L		L								
200	L	L	L	S	S	S	S	S	L		L
202	L		L								
204	L	L	L	L	L	L	L	L	L		L
206	L		L								
210	L	L	L	S	S	S	S	S			L
212	L		L								
214	L	L	L	S	S	S	S	S	L		L t +7
216	L		L								
220	L	L	L	L	L	L	L	L	L		L
222	L		L								
224	L	L bad	L	S	S	S	S	S			S
226	L		L								
230	L	L	L	S	S	S	S	S	L		L
232			L								
234	L	L	L	L	L	L	L	L	L		S
236			L								
238	L	L	L	S	S	S	S	S			S
240			L								
250	L	L	L	S	S	S	S	S			S
260			L								
270	L	L	L	L	L	L	L	L	L		L
280			L								
290	L	L	L	S	S	S	S	S			L
300			L								
310	L	L	L	L	S	S	S	S	L		L
320			L								
330	L	L bad	L	L	L	L	L	L	L		L
340			L								

Notes:
Blank = No data.
S = Shallow, wading-depth profile.
L = Long profile extending to depth of at least -20 ft.
bad = Profile data available but deemed invalid because of datum shift, noisy data, or unknown problems.
bad? = Unable to verify quality
t = profile translated horizontally by amount (in ft) indicated
trun = profile truncated before or after point indicated

Table 20
Profile Inventory: Jones Island

Line[1]	July – Aug. 1995 "S95"	Oct. – Dec. 1995 "F95"	Mar. 1996 "S96"	Sept. – Oct. 1996 "F96"	S97 Cross	Mar. 97 "S97"	Oct. 1997 "F97"	July 1998	Oct. 1998 "F98"	Apr. 2001
1	L	L	L	L	C	L	L	L Trun > 5100		
2	L	S	S	S		S	S			
3	L	L	L	L	C	L	L	L	L	
4	L	S	S	S bad		S	S			
5	L	S	S	S bad		S	S			
6	L	L	L	L trun > 580 and < 2960	C	L	L	L trun > 5364	L trun > 5329	L trun > 5355
7	L	S	S	S		S	L			
8	L	L	L	L	C	L	L	L trun > 3880	L trun > 3842	L trun > 3880
9	L	S	S	S		S	S	S		
10	L	S	S	S		S	S	S	L	S
11	L	S	S	S		S bad	S	S		
12	L	L	L	L	C	L	L	L	L	L
13	L	S	S	S bad		S	S	S	L	L
14	L	S	S	S		S	S	S bad?		S
15	L	L	L	L	C	L	L	S		L
16	L	S	S	S		S	S	S		L
17	L	S	S	S			S	S		
18	L	L	L	L	C		L	L	L	L
19	L	S	S	S			S	S		S
20	L	S	S	S			S	S		
21	L	L	L	L	C		L	S		L
22	L	S	S	S			S	S		L
23	L	S	S	S			S	S	L	
24	L	L	L	L	C	L	L	L	L	L
25	L	S	S	S		S	S	S	L	S
26	L	S	S	S		S	S	S	L	
27	L	L	L	L	C	L	L	L	L	L
28	L	S	S	S		S	S	S		L
29	L	S	S	S		S	S	S		
30	L	L	L	L	C	L	L	L	L	L
31	L	S	S	S		S	S	S		S
32	L	S	S	S		S	S	S		
33	L	L	L	L	C	L	L	L	L	L
34	L	S	S	S		S	S	S		L
35	L	S	S	S		S	S	S		
36	L	L	L		C	L	L	L	L	L
37	L	S	S	S		S	S	S		S
38	L	S	S	S		S	S	S		
39	L	L	L	L bad	C	L	L	L	L	L
40	L	S	S	S		S	S	S	L	

(Continued)

Table 20 (Concluded)

Line[1]	July – Aug. 1995 "S95"	Oct. – Dec. 1995 "F95"	Mar. 1996 "S96"	Sept. – Oct. 1996 "F96"	S97 Cross	Mar. 97 "S97"	Oct. 1997 "F97"	July 1998	Oct. 1998 "F98"	Apr. 2001
41	L	S	S	S		S	S	S		
42	L	L	L	L bad	C	L	L	L	L	L
43	L	S	S	S		S	S	S		L
44	L	S	S	S		L	S	S		
45	L	L	L	L bad	C	L	L	L	L	L
46	L	S	S	S		S	S	S	L	
47	L	S	S	S		S	S	S		L
48	L	L	L	L	C	L	L	L	L	L
49	L	S	S	S bad		S	S	S		
50	L	S	S	S		S	S	S		
51	L	L	L	L	C	L	L	L	L	L

Notes:
[1] Jones Island profiles are numbered from east to west. Line JI01 is within Fire Island Inlet and JI51 is at the west end of the island near Jones Inlet
Blank = No data
S = Shallow, wading-depth profile (some surveys to depth of ~ -10 ft)
L = Long profile extending to ~ -30-ft depth
C = Cross-island profile
bad = Profile data available but deemed invalid because of datum shift, noisy data, or unknown problems.
bad? = Unable to verify quality
trun = profile truncated before or after point indicated. On many profiles, data is missing on Fire Island side of the profile after crossing Fire Island Inlet

Table 21
Profile Inventory: Fire Island

Line	Mar. – Apr. 95	Oct. – Nov. 95	Mar. 96	Oct. 96	Feb. – Mar. 97 Cross	Mar. 97	Feb. – Mar. 98	Oct. – Nov. 98	Mar. 2001
1	L	L	L	L	C	L	L	L	L
2		S	S	S		S	L		S
3	L	L	L	L	C	L	L	L	L
4		S	S	S		S	L		S
5	L bad?	L	L	L	C	L	L	L	L
6		S	S	S		S	L		S
7	L	L	L	L	C	L	L	L	L
8		S bad	S	S		S	L		S
9	L	L	L	L	C	L	L	L	L
10		S	S	S		S	L		S
11	L bad?	S	S	S		S	L		L
12	L	L	L	L	C	L	L	L	L
13	L bad?	S	S	S		S	L		S
14	L bad?	S	S	S		S	L		S
15	L bad?	S	S	S	C	S	L		S
16	L bad?	S	S	S		S	L		S
17	L	S	S	S		S	L		S
18	L	S	S	S		S	L		S
19	L	S	S	S		S	L		S
20	L	L	L	L	C	L	L	L	L
21	L	S	S	S		S	L		S
22	L bad?	S	S	S		S	L		S
23	L bad?	S	S	S		S bad	L		S
24	L	S	S	S		S	L	L	L
25	L	S	S	S	C	S	L		L
26	L bad	S	S	S		S	L	L	L
27	L bad?	S	S	S		S	L		L
28	L	S	S	S		S	L	L	L
29	L	S	S	S		S	L bad		L
30	L	L	L	L	C	L	L	L	L
31	L	S	S	S		S	L		S
32	L	S	S	S		S	L		L
33	L	L	L	L	C	L	L		S
34		S	S	S		S	L		S
35	L	L	L	L	C	L	L	L	S
36	L	S	S	S		S	L		L
37	L	S	S	S		S	L		S
38	L	S	S	S		S	L	L	L
39	L	S	S	S		S	L		L
40	L	S	S	S		S	L	L	S
41	L	S	S	S		S	L		S
42	L	S	S	S		S	L		S
43	L	L	L	L	C	L	L	L	L
44	L	S	S	S		S	L		S
45	L	S	S	S		S	L		S
46	L	S	S	S		S	L	L	L

(Continued)

Table 21 (Concluded)

Line	Mar. – Apr. 95	Oct. – Nov. 95	Mar. 96	Oct. 96	Feb. – Mar. 97 Cross	Mar. 97	Feb. – Mar. 98	Oct. – Nov. 98	Mar. 2001
47	L bad	S	S	S		S	L		S
48	L	S	S	S		S	L		S
49	L	S	S	S	C	S	L	L	L
50	L	S	S	S		S	L		L
51	L	S	S	S		S	L	L	S
52	L	S	S	S		S	L		S
53	L	S	S	S		S	L		S
54	L	S	S	S		S	L		S
55	L	L	L	L	C	L	L	L	L
56	L	S	S	S		S	L	L	L
57	L	S	S	S		S	L		L
58	L	L	L	L		L	L		L
59		S	S	S		S	L		L
60	L	L	L	L	C	L	L	L	S
61		S	S	S		S	L		S
62	L	L	L	L	C	L	L	L	S
63		S	S	S		S	L		S
64	L bad?	S	S	S		S	L		S
65		S	S	S		S	L		S
66	L	L	L	L	C	L	L	L	S
67		S	S	S		S	L		S
68	L	S	S	S	C	S	L		S
69		S	S	S		S	L		S
70	L	L	L	L	C	L	L	L	S
71	L	S	S	S		S	L		S
72	L	L	L	L	C	L	L	L	L
73		S	S	S		S	L		S
74		S	S	S		S	L		S
75		S Bad	S	S		S	L	L	S
76	L	S	S	S		S	L		L
77	L	L	L	L		L	L	L	L
78		S	S	S		S	L		S
79	L	L	L	L	C	L	L	L	L
80		S	S	S		S	L		S
81	L	L	L	L	C	L	L	L	L
82	L	L	L	L	C	L	L	L	L
83	L	L	S	L	C	L	L	L	L
84	L	L	S	L	C	L	L	L	L

Notes:
Blank = no data
S = Shallow, wading-depth profile
L = Long profile extending to ~ -30-ft depth
C = Cross-island profile
bad = Profile data available but deemed invalid because of datum shift, noisy data, or unknown problems
bad? = Unable to verify quality

Table 22
Profile Inventory: Westhampton Beach

Line	Apr. 1995	Nov. 1995	Mar. 1996	Oct. 1996	Feb. 1997 Cross	Mar. – Apr. 1997	Feb. 1998	Oct. 1998	Mar. 1999	Nov. 1999	Apr. 2000	Apr. 2001
1		L	L	L	C	L	L	L	L	L	L	L
2		L	L	L	C	L	L	L	L	L	L	L
3	L bad	S	S	S		S	L	L	L	L	L	L
4	L	S	S	S		S	L	L	L	L	L	L
PS5										L		
5	L	L	L	L	C	L	L	L	L	L	L	L
740							L			L		L
5.1							L			L	L	L
5.2							L			L	L	L
5.3							L			L	L	L
5.4							L			L	L	L
6	L	L	L	L	C	L	L	L	L bad	L	L	L
6.1							L			L	L	L
7		S	S			S bad	S	S bad?				L
7.1							L			L	L	L
7.2							L			L	L	L
7.3							L			L	L	L
8		S	S			S bad	S	S				
680							L			L	L	
9		S	S		C	S	S	S				L
9.1							L			L	L	L
9.2							L bad			L	L	L
PS20										L		
10		S	S			S	S	S				L
10.1							L			L	L	L
11	L	L	L		C	L	L	L	L	L	L	L
11.1							L			L	L	L
PS24										L		
PS25										L		
12		S	S			S	S	S				L
12.1							L			L	L	L
13	L	L	L	L	C	L	L	L	L	L	L	L
590							L			L	L	
13.1							L			L	L	L
14		S	S			S	S bad?	S				L
PS30										L		
PS31										L		
14.1							L			L	L	L
15		S	S			S	S	S				L
14.1							L			L	L	L
PS34										L		
PS35										L		
16	L	L	L	L	C t +160	L	L	L	L	L	L	L
17		S	S	S bad		S	S	S				
18	L	S	S	S	C	S	L	L	L	L	L	L

(Continued)

Table 22 (Concluded)

Line	Apr. 1995	Nov. 1995	Mar. 1996	Oct. 1996	Feb. 1997 Cross	Mar. – Apr. 1997	Feb. 1998	Oct. 1998	Mar. 1999	Nov. 1999	Apr. 2000	Apr. 2001
19		S	S	S bad		S	S	S				
20	L	L	L	L	C	L	L	L	L	L	L	L
21		S	S	S		S	L					
22	L	S	S	S		S	L	L				L
23		S	S	S		S	L					
24	L	L	L	L	C	L	L	L bad				L
25		S	S	S		S	L					
26	L bad	S	S	S		S	L	L				L
27		S	S	S		S	L					
28	L	L	L	L	C	L	L	L				L
29		S	S	S		S	L	L				L
30	L	L	L	L	C	L	L	L				L
31		S	S	S		S	L	L				L
32		S bad	S bad	S		S	L					
33		L	L	L	C	L	L	L				L
34		S bad?	S bad?	S bad?		S bad?	L bad?					
35	L	L	L	L		L	L	L				L
36	L bad	S	S	S		S	L	L				L
37	L bad	S	S	S		S	L	L				L
38	L	S	S	L		S	L	L				L
50							L					
39	L bad	S	S	L	C	S	L					L
49							L					
40	L	L	L	L	C	L	L	L				L
48							L					
41	L	L	L	L	C	L	L	L				L
47							L					L
46							L					
42	L	L	L	L	C	L	L	L				L
43		L	L	L	C	L	L	L				L
45							L					
44	L	L	L	L		L	L	L				L

Notes:
Blank = No data
Note: 1999 and 2000 profiles only available for the Westhampton Interim Project area, profiles W1 to W20. Some additional locations added that are not part of the normal ACNYMP series
t = profile translated horizontally by amount (ft) indicated
S = Shallow, wading-depth profile
L = Long profile extending to ~ -30-ft depth
C = Cross-island profile (Feb. 1997 only)
bad = Profile data available but deemed invalid because of datum shift, noisy data, or unknown problems
bad? = Unable to verify quality

Table 23
Profile Inventory: Ponds

Line	Apr. 1995	Nov. 1995	Apr. 1996	Oct. 1996	Feb. 1997 Cross	Mar. – Apr. 1997	Mar. 1998	Oct. 1998	Apr. 2001
1	L	L	L	L	C	L	L	L	L
Sh1							L		
2	L bad[1]	S	L	L		L	L	L	L
Sh2							L		
3	L	L	L	L	C	L	L	L	L
4		S	L	S		S	L	L	L
5	L	L	L	L	C	L	L	L	L
6		S	S	S		S	L		
7	L	S	S	S	C	S	L		S
8		S	S	S		S	L		
9	L trun > 1726	L	L	L	C	L	L	L	L
10		S	S	S		S	L		
11	L	S	S	S		S	L		S
12		S	S	S		S	L		
13		L	L	L		L	L	L	S
14		S	S	S t -10		S	L		
15	L	L	L	L		L	L	L	L
16		S	S	S		S	L		S
17	L bad	S	S	S		S	L		S
18		L	L	L		L	L	L	L
19		S	S	S		S	L		S
20	L	L	L	L		L	L	L	L
21		S	S	S		S	L		
22	L	S	S	S		S	L		
23		S	S	S		S	L tV -10	L	L
24		S	S	S		S	L		S
25		S	S	S		S	L		
26	L	L	L	L		L	L	L bad	L
27		S	S	S		S	L		
28		S	S	S		S	L		S
29		S	S	S		S	L		
30	L	L	L	L		L	L	L	L
31		S	S	S		S	L		
32	L	S	S	S		S	L		S
33		S	S	S		S bad	L bad?		
34	L	L	L	L		L	L	L bad	S
35		S	S	S		S	L		
36		S	S	S		S	L	L	S
37	L	L	L	L		L	L		L
38		S	S	S		S	L		S
39		L	L	L		L	L	L	L
40		S	S	S		S	L		S
41	L	L	L	L		L	L	L	L
42		S	S	S		S	L		S

Notes:
[1] Some S95 long lines have correct shape but are low offshore; appear to be translated vertically.
Blank = No data
S = Shallow, wading-depth profile
L = Long profile extending to ~ -30-ft depth
C = Cross-island profile (P1 through P9 only, Feb. 1997 only)
t = translated horizontally by amount indicated (ft)
tV = translated vertically by amount indicated (ft)
trun = truncated beyond distance indicated (ft)
bad = Profile data available but deemed invalid because of datum shift, noisy data, or unknown problems
bad? = Unable to verify quality

Table 24
Profile Inventory: Montauk Zone

Line	Apr. 1995	Nov. – Dec. 1995 "F95"	Apr. 1996	Oct. – Nov. 1996	Apr. 1997	Mar. 1998	Oct. 1998	June 2001
1	L	L	L	L	L	L	L	L
2		S	S	S	S	L		
3		S	S	S	S	L		
4		S	S	S	S	L		
5	L	L	L	L	L	L	L bad	L
6		S	S	S	S	L		
7	L	L	L	L	L	L	L	L
8		S	S	S	S	L		
9		S	S	S	S	L		
10	L	L	L	L	L	L	L	L
11		S	S	S	S	L		
12	L	S	S	S	S	L		
13		S	S	S	S	L		
14	L	L	L	L	L	L	L	L
15		S	S	S	S	L		
16	L	S	S	S	S	L		
17		S	S	S	S	L		
18	L bad	L	L	L	L	L	L	L
19		S	S	S	S	L		
20	L	S	S	S	S	L		S
21		S	S	S	S	L		S
22		S	S	S	S	L		
23	L	L	L	L	L	L	L	L
24		S	S	S	S	L	L	L
25	L	S	S	S	S	L		
26		S	S	S	S	L	L	L
27	L	L	L	L	L	L	L	L
28		S	S	S	S	L		
29	L	S	S	S	S	L		L
30		S	S	S	S	L		
31		S	S	S	S	L		
32	L	L		L	L	L	L	L
33		S	S	S	S	L		
34	L	S	S	S	S	L	L	L
35		S	S	S	S	S		L
36		S	S	S	S	S	L	
37		L	L	L	L	S	L	L
38		S	S	S	S	S	L	
39		S	S	S	S	S		
40		L	L	L	L	L	L	L
41		S	S	S	S	S		L
42		S	S	S	S	S		
43		L	L	L	L	S	L trun >432	L

Notes:
Blank = No data
S = Shallow, wading-depth profile
L = Long profile extending to ~ -30-ft depth.
trun = truncated beyond distance indicated (ft)
bad = profile data available but deemed invalid because of datum shift, noisy data, or unknown problems

Table 25
Summary Tabulation of ACNYMP Profiles

	Coney	Rockaway	Long Beach	Jones	Fire Island	Westhampton	Ponds	Montauk	Totals
Long good	413	228	189	215	324	325	148	130	1972
Long bad	13	6	9	3	13	9	5	2	60
Short good	2	13	76	189	287	101	120	134	922
Short bad	0	0	6	5	3	12	1	0	27
Percent bad	3.04%	2.43%	5.36%	1.94%	2.55%	4.7%	2.19%	0.75%	2.92%

5 Conclusions

The Atlantic Coast of New York Monitoring Program accomplished one of its main stated goals in collecting and assembling from other sources a comprehensive set of cross-shore profiles for the south shore of Long Island. The density of profiles amassed for this 130-mile coastal reach, is unprecedented in the United States.

The following statistics summarize the results for the eight south shore reaches (from Table 25):

a. Total valid long profiles: 1,972.

b. Total valid short profiles: 922.

c. Total number of profiles deemed to be bad (both long and short): 87.

d. Percentage of bad profiles: 2.92.

Considering the inherent difficulties of field operations, including transportation, weather delays, securing access permits, operating trucks, sleds, and boats, collecting and reducing the data, and conducting quality control, we consider the failure rate of under three percent to be an impressive display of the abilities of the survey contractors used during the ACNYMP.

These data are a highly detailed and unique snapshot of the south shore of Long Island during the 1990s. These data will serve as foundation for future scientific studies of sediment transport, morphological change, and shoreline characteristics. In addition, these data will serve as a foundation upon which to compare future bathymetric and topographic data collected along the south shore, permitting a rational evaluation of controversial topics such as shoreline change, beach fill, and the influence of inlets and structures.

It is essential that some level of topographic and bathymetric monitoring be continued along the Long Island shore. The ACNYMP data set is too valuable to languish as an isolated set of data points. Even if the spacing and time interval of profiles has to be increased, at least occasional surveys will allow researchers to evaluate long-term erosion and accretion trends and determine the influence of beach fills or sea-level changes. We recommend that at least some of the long profiles in each reach continue to be monitored annually for many years. Ideally, all profiles should be long lines in order to better define where and how sediment is moving on the shoreface, but the high cost of sled surveys must be considered in planning fieldwork.

The current ACNYMP survey procedure, employing survey crews on the beach and towed sleds in the nearshore, is effective and provides high-quality data. But, this methodology has several disadvantages. First, the manpower required to complete the fieldwork makes this an expensive procedure. Second, a comprehensive survey covering many kilometers of coast takes weeks to complete and requires significant effort to secure access permits, etc. This makes it difficult to collect an instantaneous picture of storm effects. Third, the survey data is detailed in the onshore-offshore direction but contains longshore data gaps of 1,000 or 2,000 ft, depending on the specified profile spacing. These gaps may be significant because of possible noncoverage of morphological features, such as blowouts in dunes. It would be impractical and too costly to decrease line spacing to 500 ft or less. Therefore, we recommend that remote-sensing technologies be tested and compared with profile surveys to determine if an alternate technique can provide quality beach and nearshore data. Among the methods that should be tested are airborne LIDAR (LIght Detection And Ranging) surveys for dry land areas, and multibeam acoustic surveys from small boats or jet skis for the offshore area. These remote methods may never totally replace profile surveys, but far fewer profiles may be needed, therefore reducing costs.

To improve the relationship between NGVD and water-level datums such as mean high or mean low water, several tide gauges should be established and maintained for several years along the south coast (on the ocean side of the barrier). Considering the political sensitivity of many Long Island south shore projects, actual tide gauge data would be valuable in refining project design. Possibly the cost of the instruments can be shared among various projects and agencies.

Over time, historical profile data should be added to the ACNYMP database. Archived data at the New York District and DOS can be digitized and used, provided that verifiable monuments can be identified and provided that these older monuments coincide with some of the contemporary ones.

References

Birkemeier, W. A. (1984). "A user's guide to ISRP: The Interactive Survey Reduction Program," Instruction Report CERC-84-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

DeWall, A. E. (1979). "Beach changes at Westhampton Beach, New York, 1962-73," Miscellaneous Report No. 79-5, Coastal Engineering Research Center, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Fleming, M. V., and DeWall, A. E. (1982). "Beach Profile Analysis System (BPAS), Vol I, System Overview," Technical Report No. 82-1 (I), Coastal Engineering Research Center, Waterways Experiment Station, Vicksburg, MS.

Morton, R. W., Bohlen, W. F., and Aubrey, D. G. (1986). "Beach changes at Jones Beach, Long Island, NY, 1962-74," Miscellaneous Paper CERC-86-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Offshore and Coastal Technologies, Inc. (1997). "Beach profile rectification, Fire Island Inlet to Montauk Point, Long Island, New York," Report submitted to the U.S. Army Corps of Engineers, New York District, OCTI, Inc. – East Coast, Chadds Ford, PA.

Research Planning Institute. (1983). "Final report, Fire Island Inlet to Montauk Point, Long Island, New York, reformulation study, sediment budget analysis summary report," Report prepared for U.S. Army Engineer District, New York, Research Planning Institute, Columbia, SC (final revisions September 1985).

Sommerfeld, B. G., Mason, J. M., Kraus, N. C., and Larson, M. (1994). "BFM: Beach fill module, Report 1, Beach Morphology and Analysis Package (BMAP) - user's guide," Instruction Report CERC-94-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Tanski, J., Bokuniewicz, H. J., and Schubert, C. E. (1990). "An overview and assessment of the coastal processes data base for the south shore of Long Island." *Proceedings of a Workshop, April 20-21, 1989,* New York Sea Grant Program Special Report No. 104, New York Sea Grant, Stony Brook, NY.

Appendix A
Profile Examples

This appendix presents profiles from select locations in the eight south shore reaches. The figures are organized from west to east, beginning at Coney Island and ending at Montauk Point. The plots were made using BMAP software Version 2.01A (see Sommerfeld et al. (1994)[1] for details on the earlier DOS version). Profile locations are shown in Figures 3–10. The curves are shown at variable scales to maximize plot area. Individual profiles cannot be scaled from these figures. Rather, their purpose is to show the general characteristics and overall shape of the shoreface. Bad profiles have not been included.

Most of the Long Island south shore profile lines are oriented approximately north-south, and in the following plots, north is to the left and south is to the right. Horizontal and vertical units are feet, and elevations are shown relative to NGVD 1929.

Readers wishing to plot other profile locations can extract the data from the CoastalView compact disk or can contact the U.S. Army Engineer District, New York.

[1] All references cited in this appendix are listed in the References section at the end of the main text.

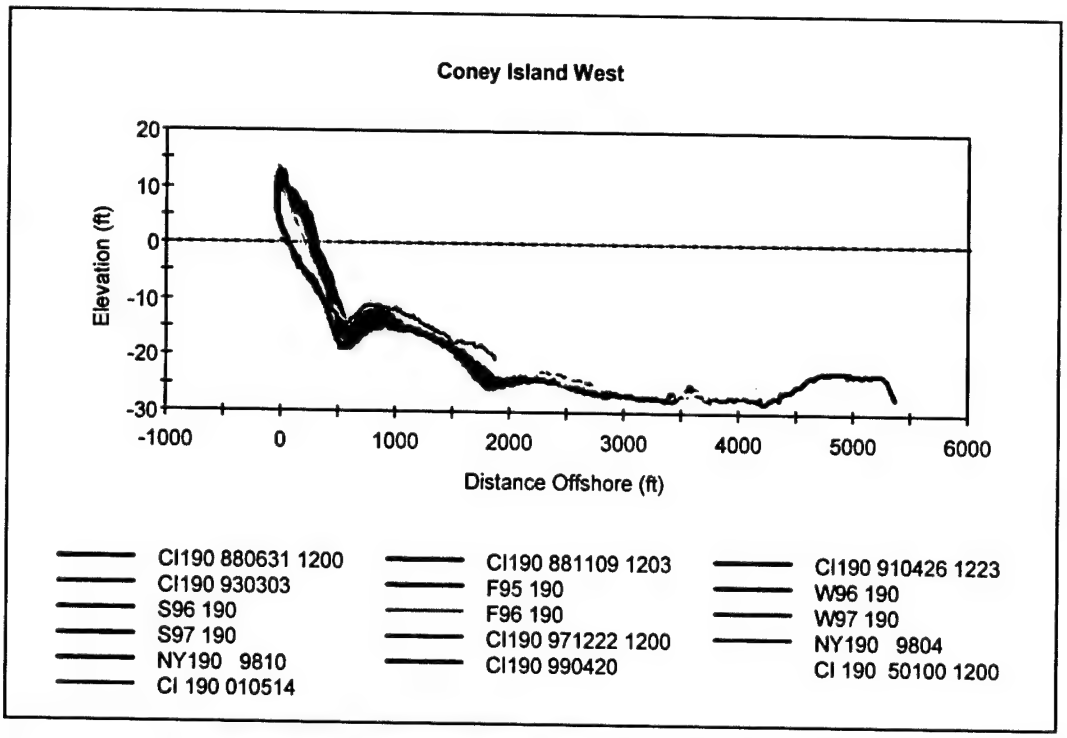


Figure A1. Coney Island 190. Located near west end of Coney Island in Sea Gate community. Profiles after 1993 reveal increased sand on shoreface after beach fill

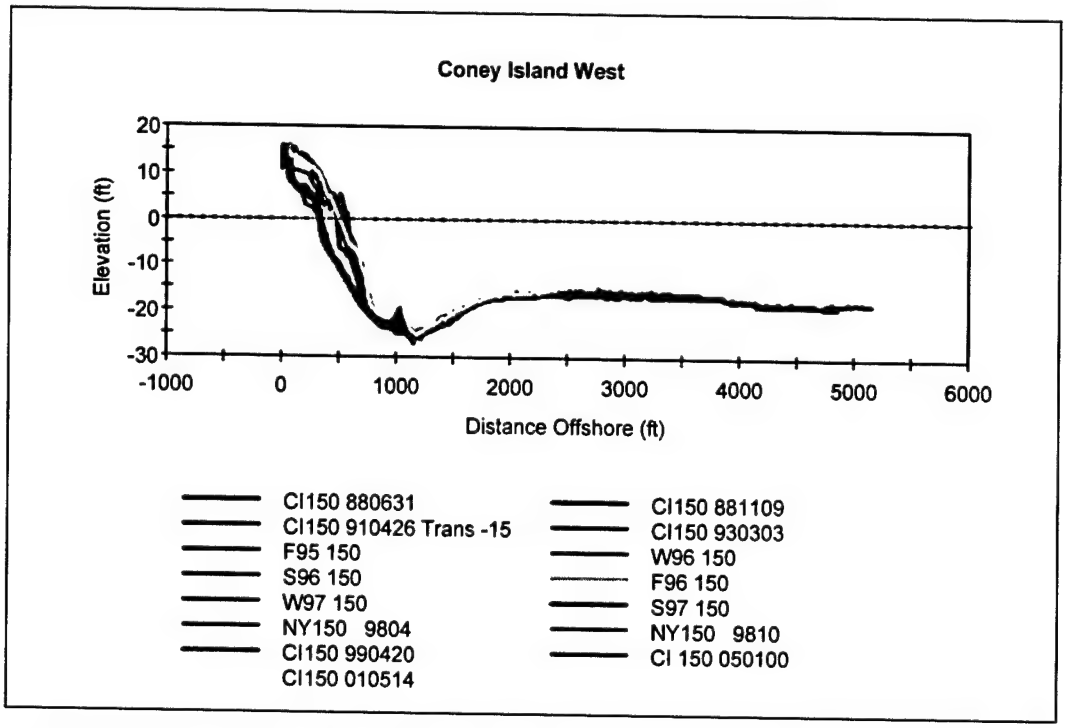


Figure A2. Coney Island 150, located just west of groin. Long profiles show minimal seafloor change beyond active shoreface

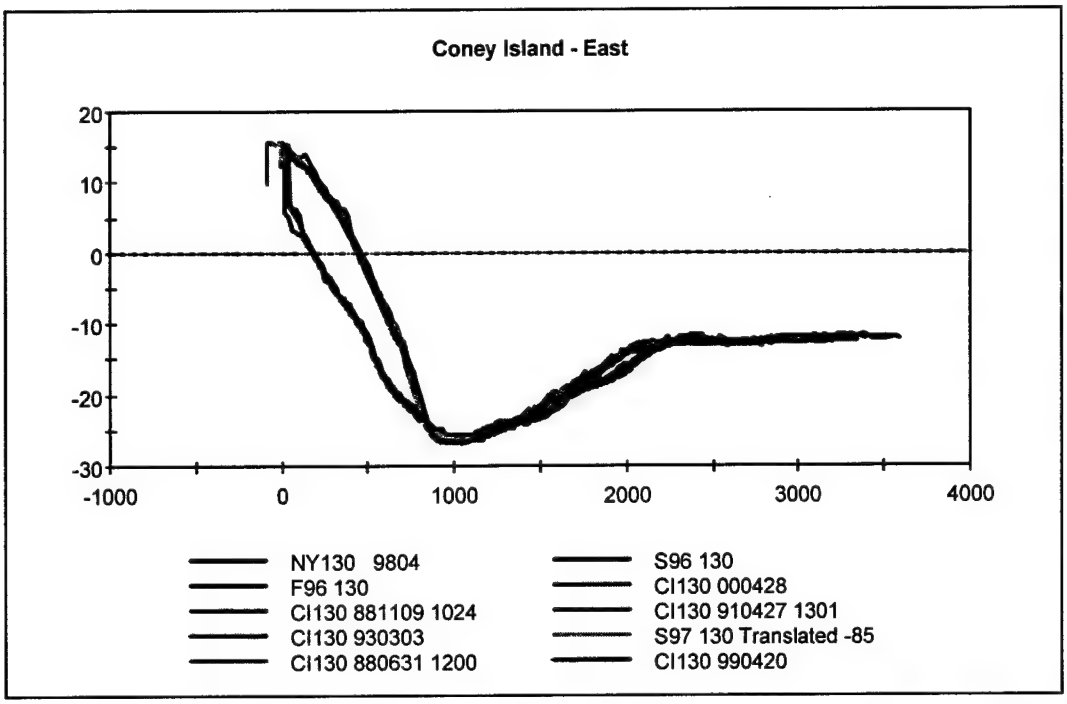


Figure A3. Coney Island 130, located east of groin. Fill extends to top of boardwalk

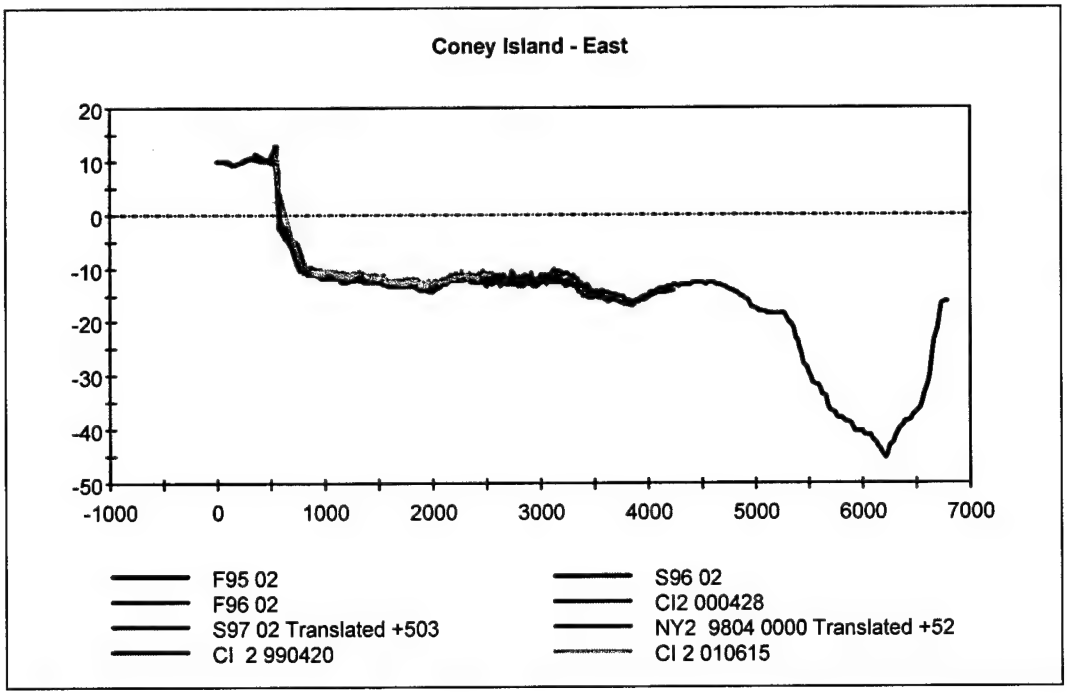


Figure A4. Coney Island 02, west of amphitheater on Manhattan Beach. These profiles also show minimal change on seafloor. Longest line, F95, extends across the Rockaway Inlet navigation channel

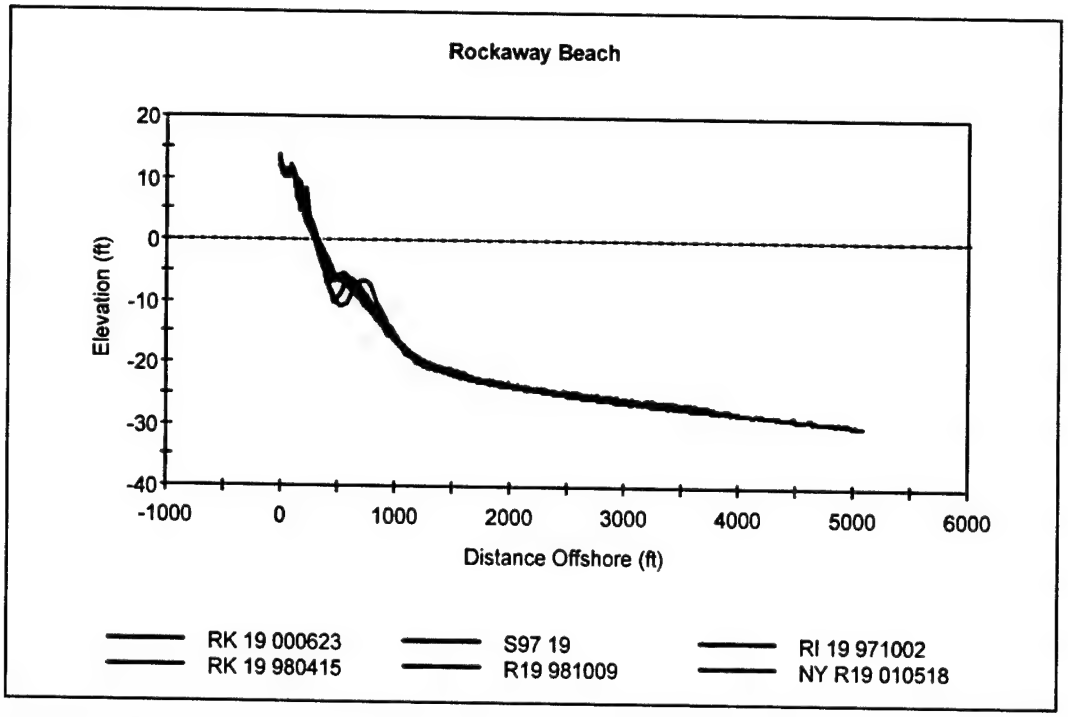


Figure A5. Rockaway Beach 1, at west end of spit south of mouth of Rockaway Inlet and west of Breezy Point community

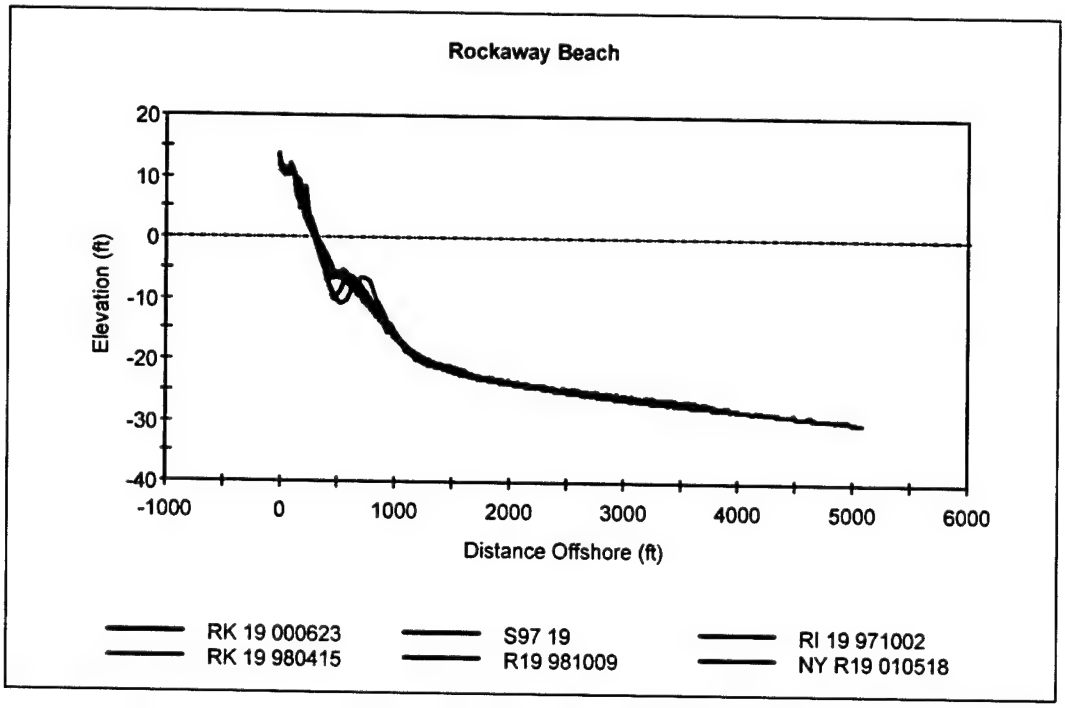


Figure A6. Rockaway Beach 19, between Beach 148th and 149th Streets, south of Jamaica Bay. Profiles show minor sand bar activity but essentially no changes deeper than ~-17 ft

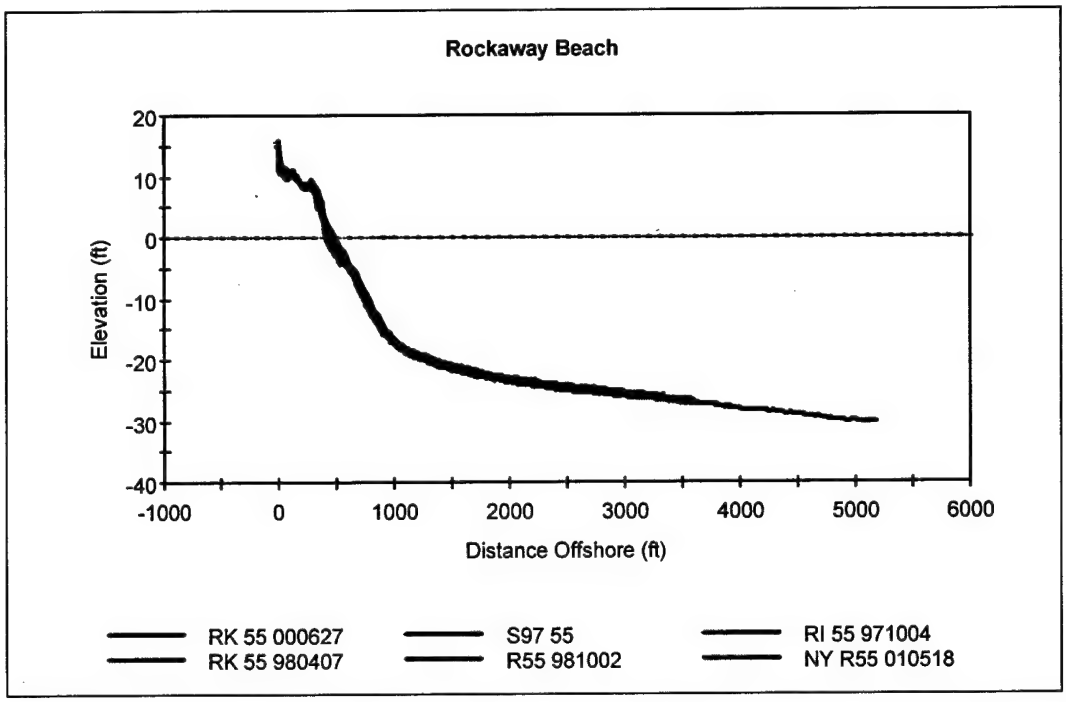


Figure A7. Rockaway Beach 55, east of Beach 77th Street. A surprising finding is that bars are not present, and profiles show that almost no permanent seafloor changes occurred here between 1997 and 2001

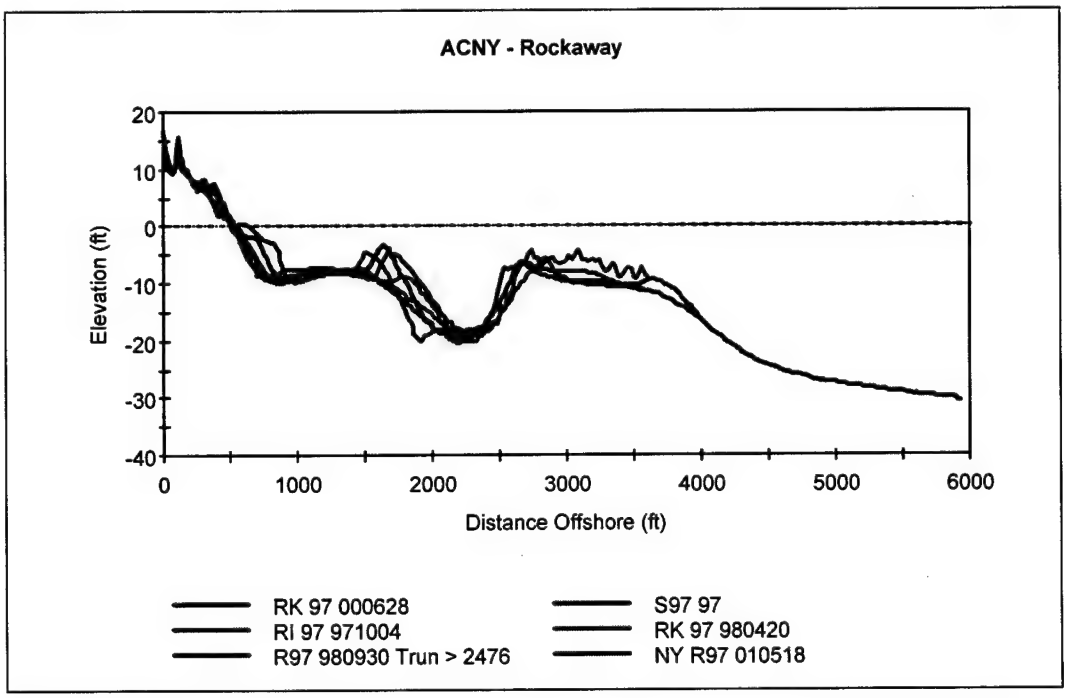


Figure A8. Rockaway Beach 97. Located in the mouth of East Rockaway Inlet near Crest Road

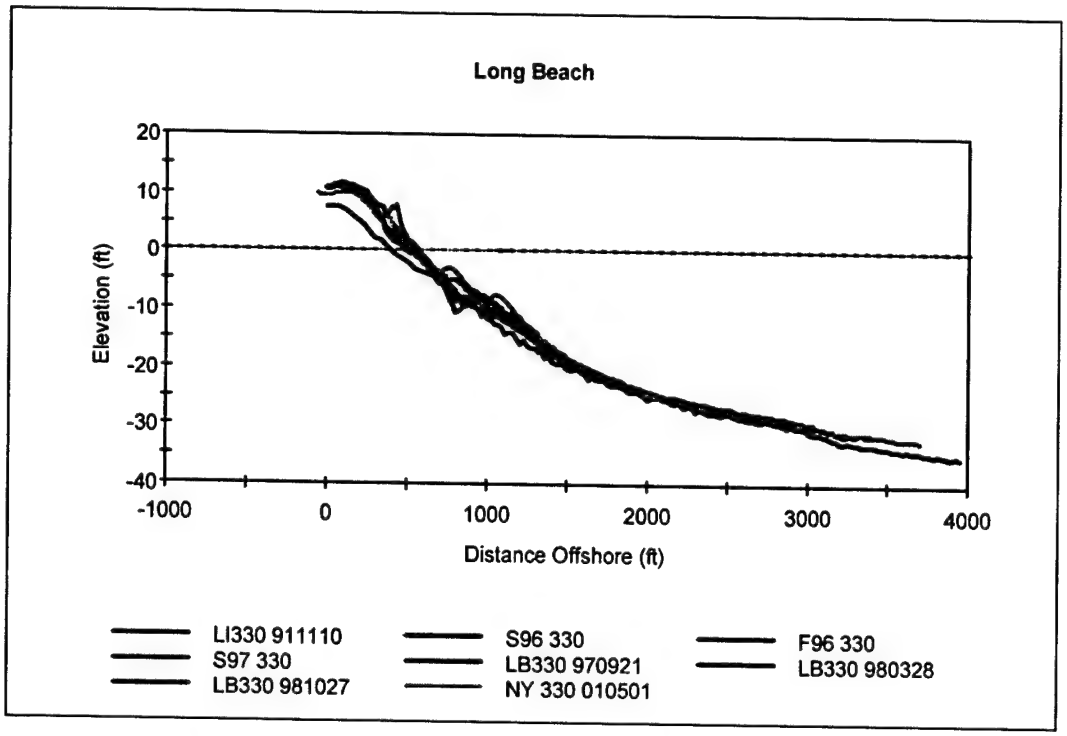


Figure A9. Long Beach 330, at west end of Long Beach in Silver Point Park

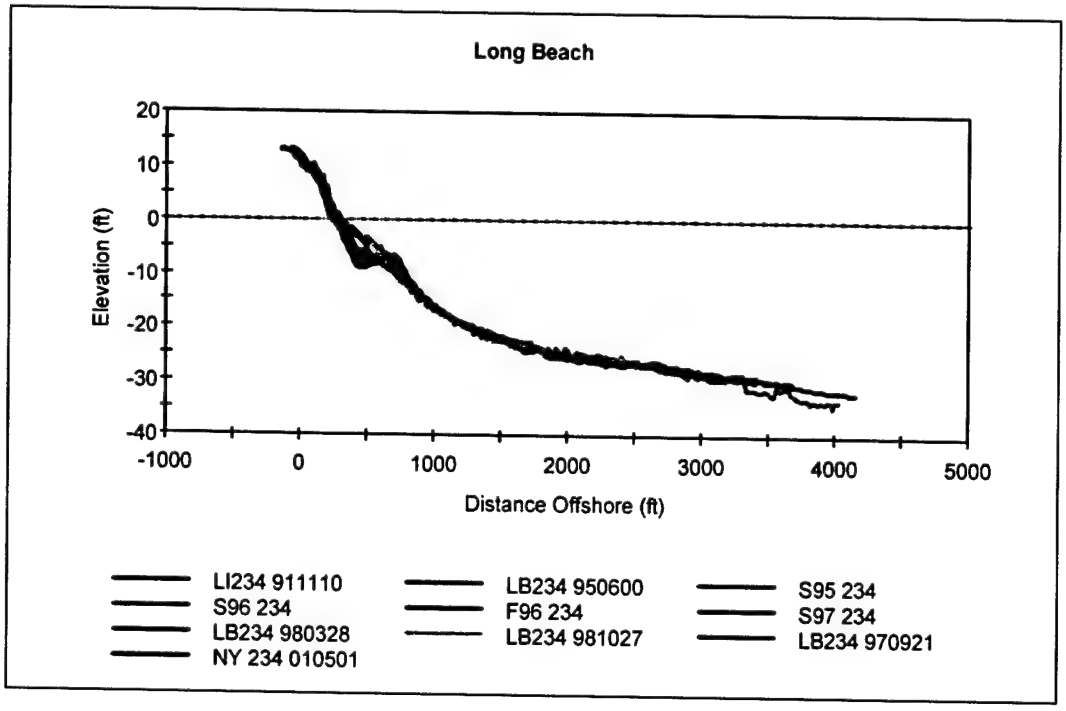


Figure A10. Long Beach 234, Atlantic Beach. Few seafloor changes occurred beyond ~ -15 ft from 1991 to 2001

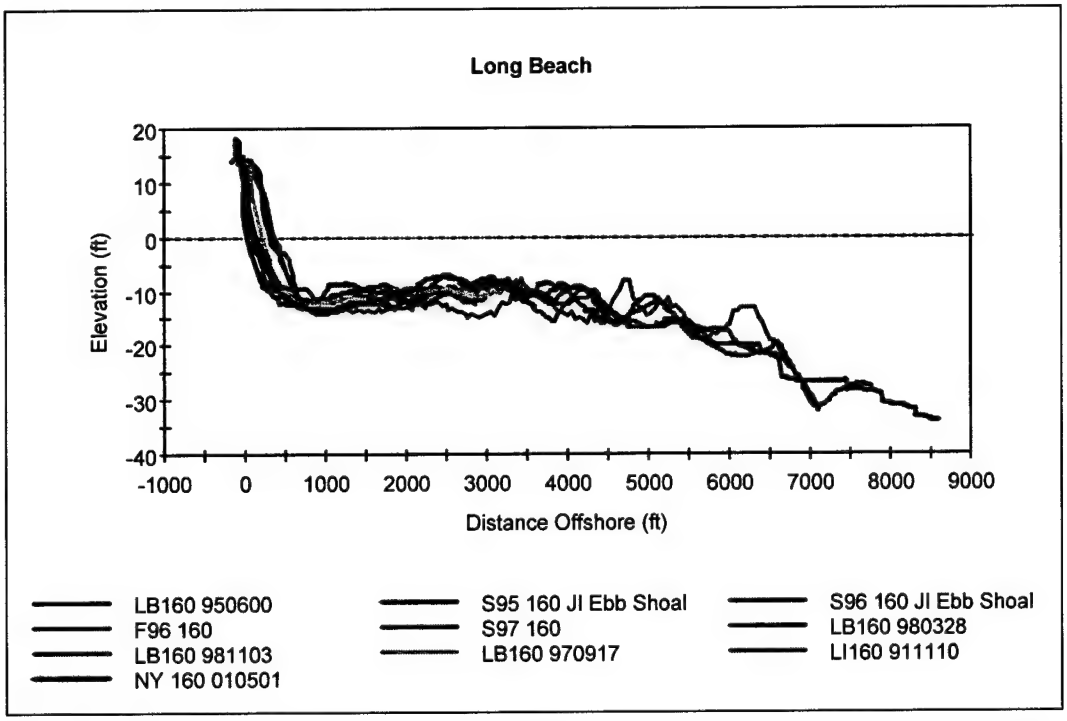


Figure A11. Long Beach 160. These profiles are at Point Lookout community, just west of the mouth of Jones Inlet, and cross Jones Inlet ebb shoal. Significant seabed changes demonstrate movement of shoals and channels on ebb shoal

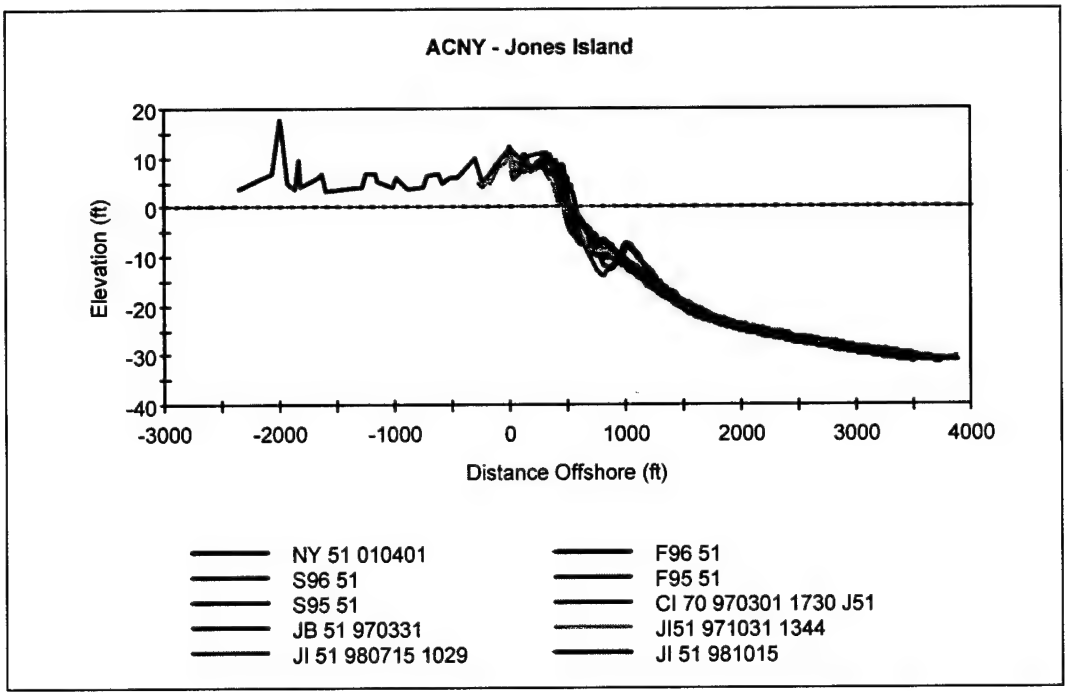


Figure A12. Jones Beach 51, the last profile monument, near west end of island, east of terminal groin at the mouth of the Jones Inlet. Cross-island profile (CI 70 971031) shows dunes and ridges

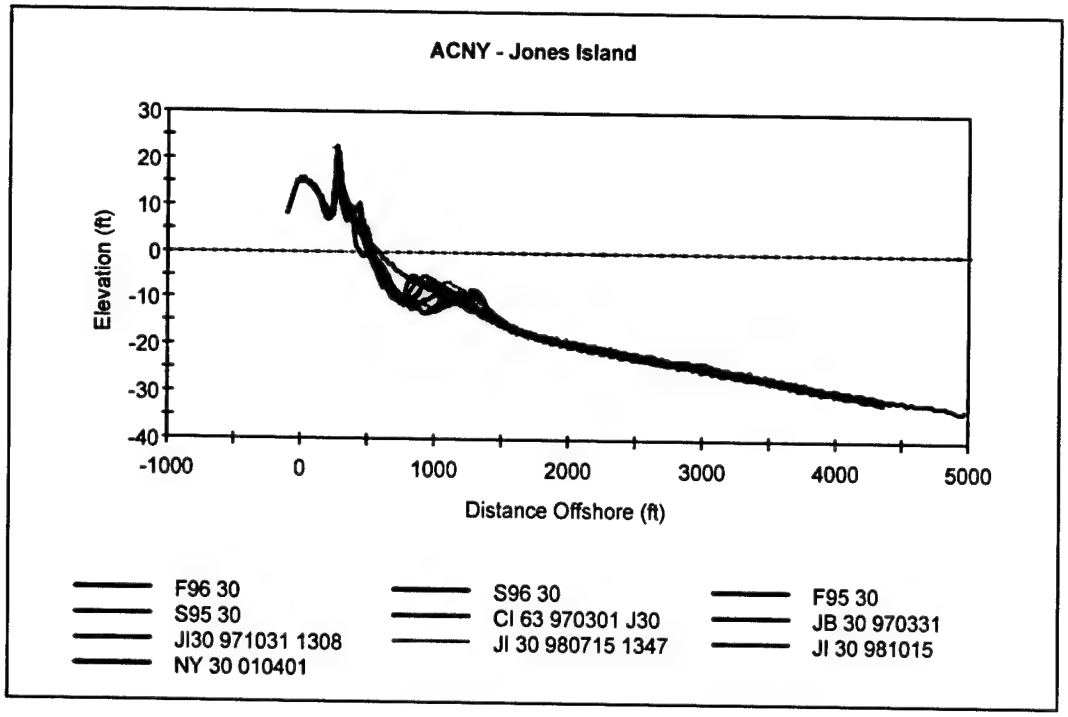


Figure A13. Jones Island 30. Located about half of distance between mouth of Fire Island Inlet and west end of island, these profiles show active bar changes and a tall, narrow frontal dune. The dune may be maintained by highway department

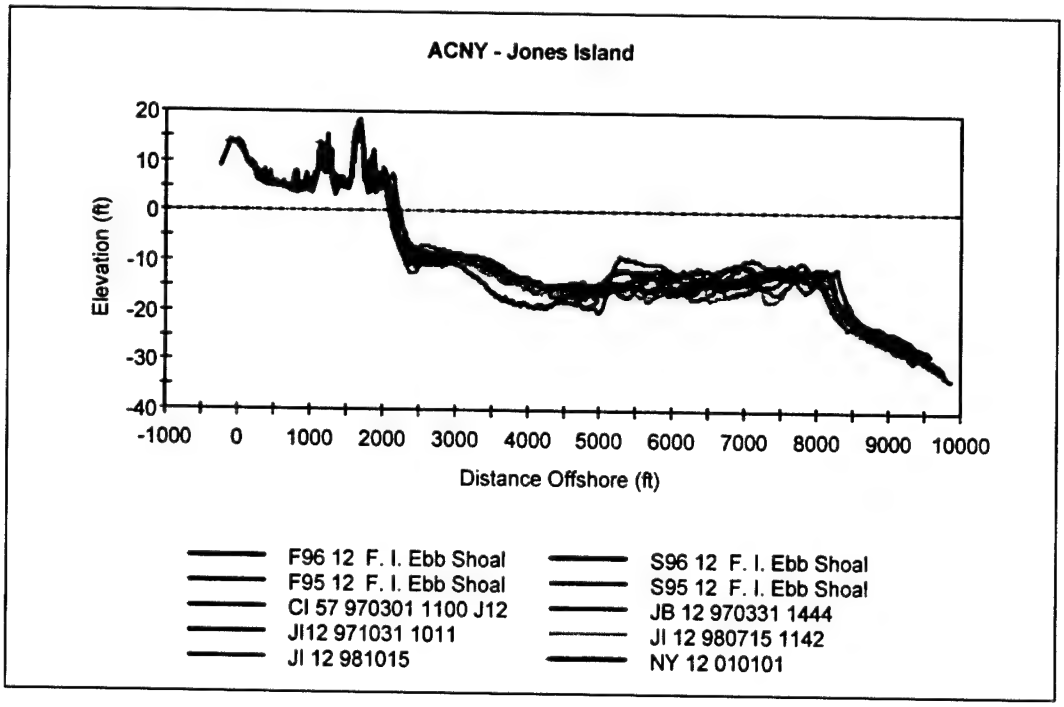


Figure A14. Jones Island 12, which crossed Fire Island Inlet ebb shoal. Profiles show significant changes in the surface morphology of the shoal. Note that these are unusually long lines, almost 2 miles

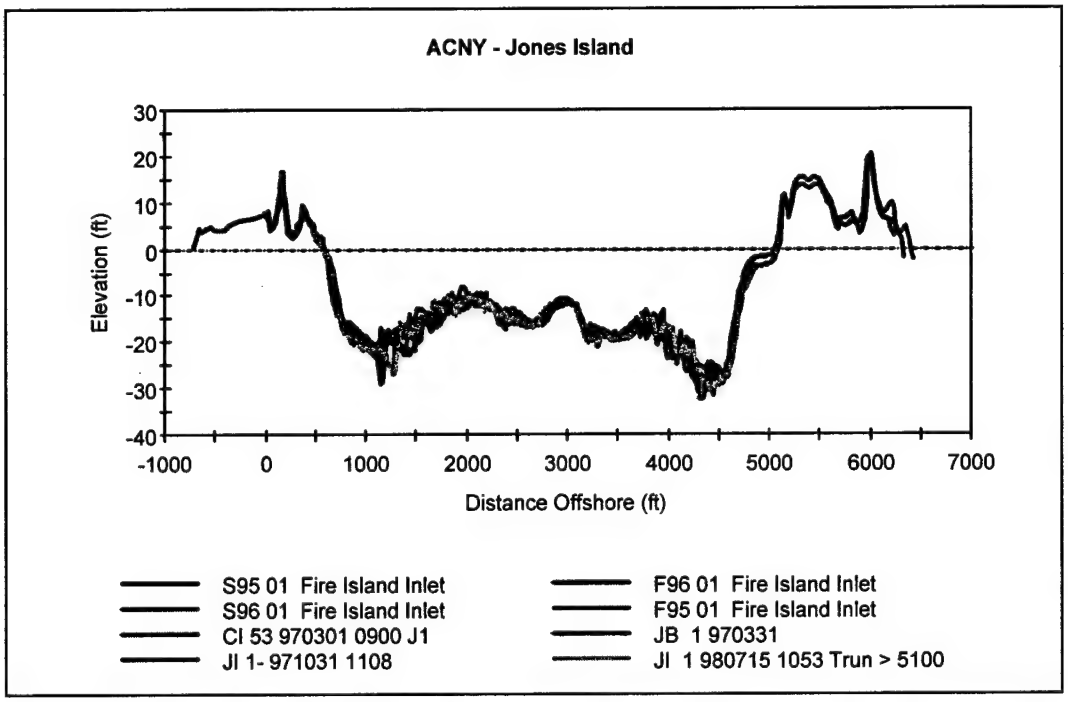


Figure A15. Jones Island 01. These lines cross Fire Island Inlet as well as Fire Island (dunes on right side of image). Federal navigation channel follows the southern (right side) thalweg

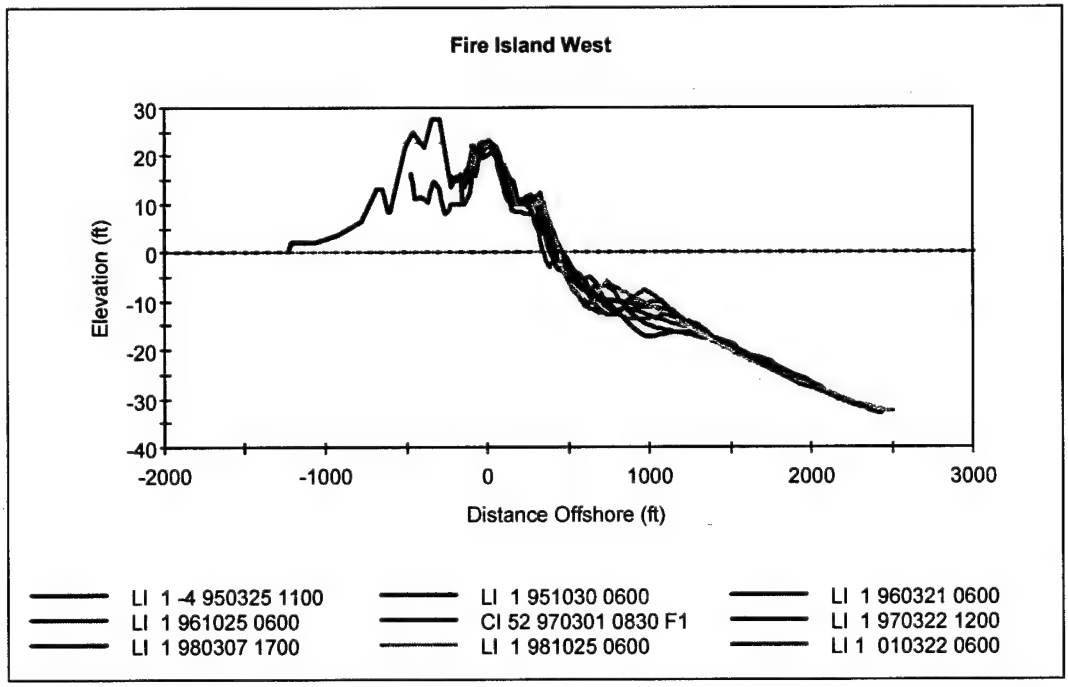


Figure A16. Fire Island 1, at Democrat Point at west end of beach near jetty. Discrepency between 951030 and CI 52 970301 on dune is likely a result of different profile azimuths

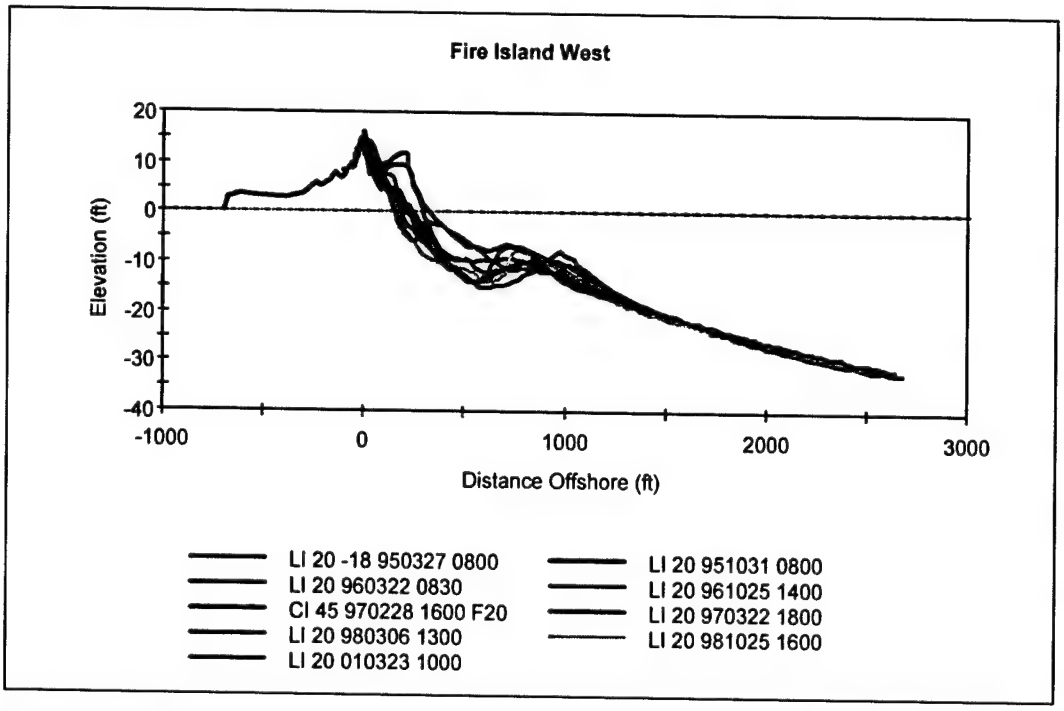


Figure A17. Fire Island 20, located between summer communities of Fair Harbor and Atlantique. Shoreface displays active bar movement and dune changes

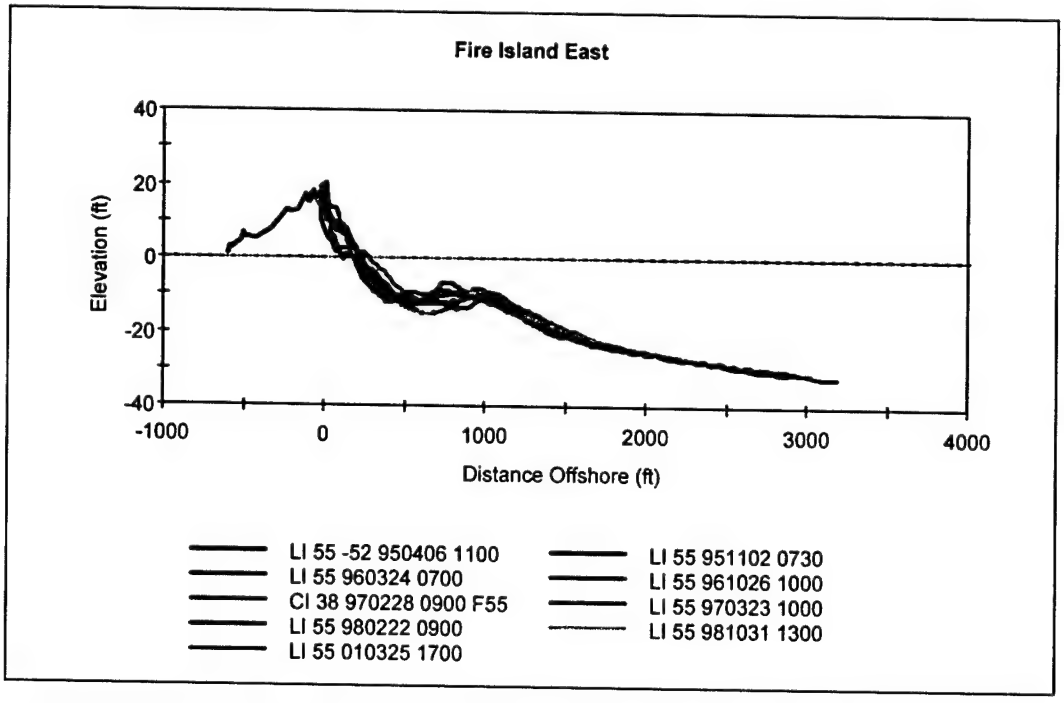


Figure A18. Fire Island 55, near Davis Park. Less bar migration occurred here than at FI20 (previous figure). Cross-island profile shows that barrier is only about 500 ft wide and has just a single dune

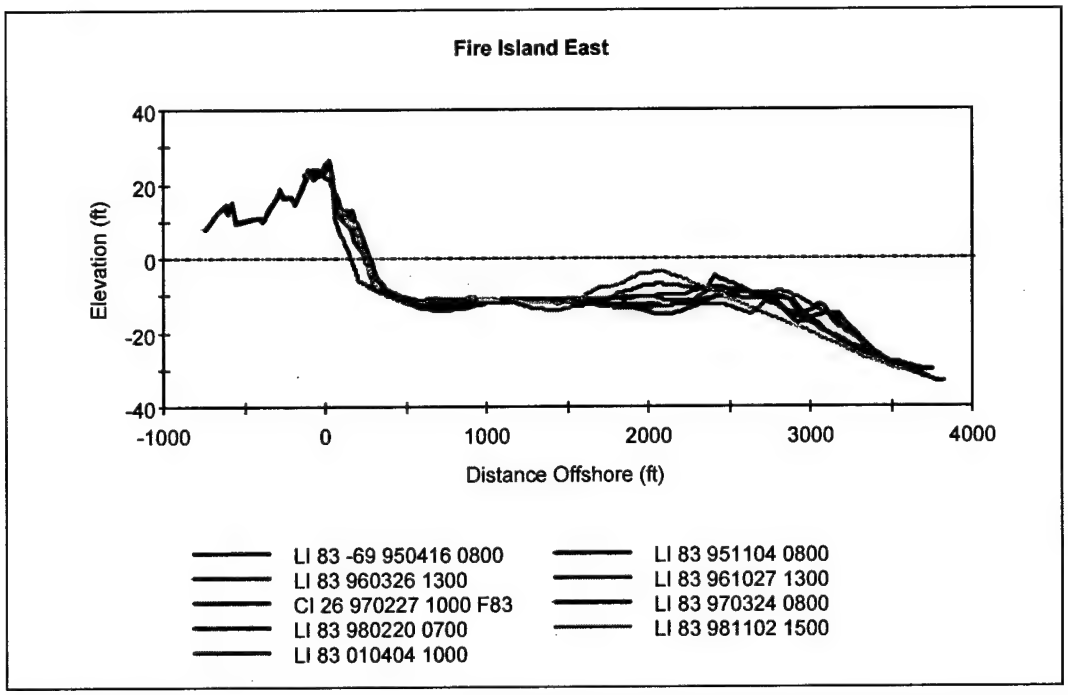


Figure A19. Fire Island 83. These profiles cross Moriches Inlet ebb shoal. Inner portion of shoal was surprisingly stable over 6 years, but changes on outer edge represent movement of sand bodies on shoal's outer bar

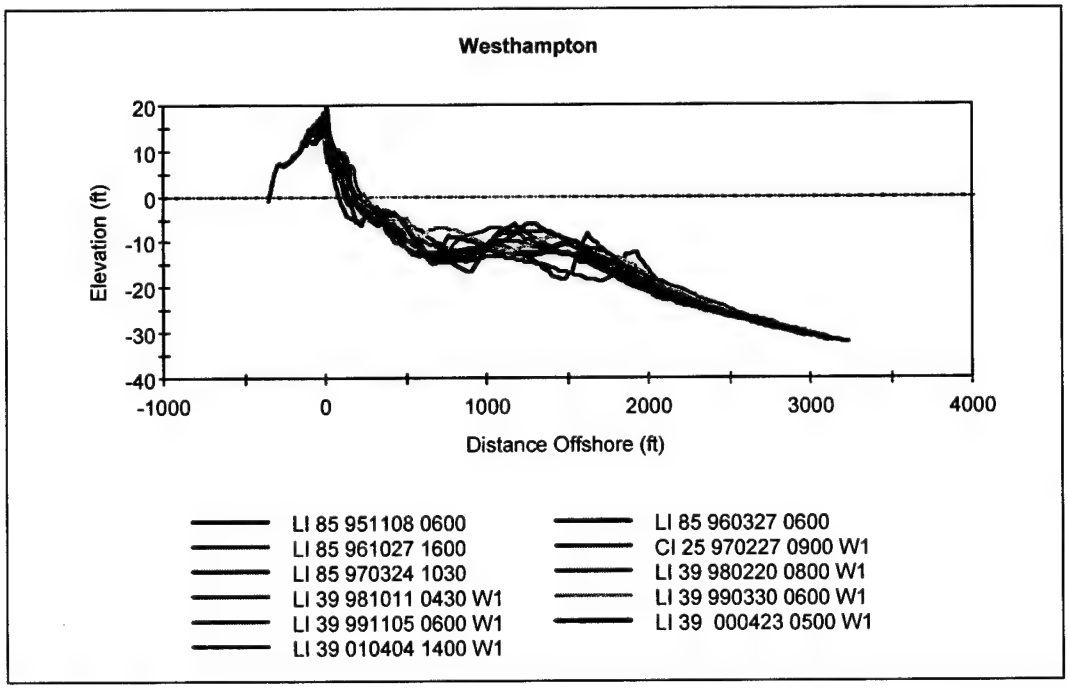


Figure A20. Westhampton 1. Due to ongoing projects, Westhampton has more comprehensive profile survey coverage than other ACNYMP reaches. This location is at east edge of Moriches Inlet ebb shoal

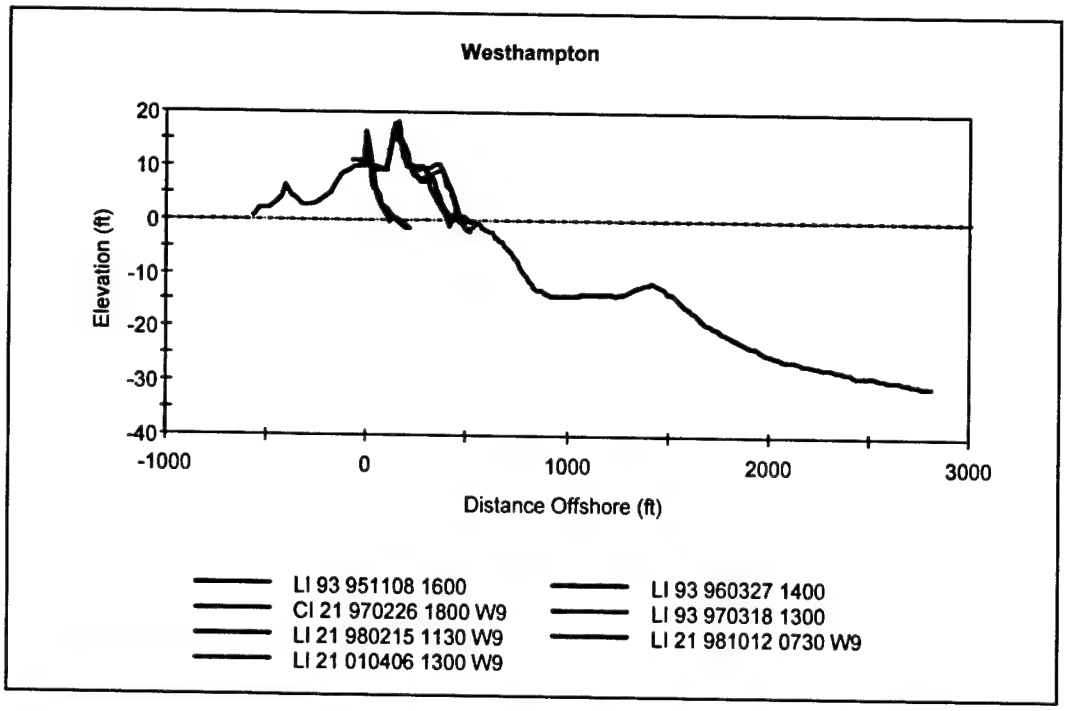


Figure A21. Westhampton 9. This location clearly shows effect of a major beach fill, where seaward face of dune advanced over 350 ft after 1996. Profiles from 1995 and 1996 are not erroneous; other nearby profile locations show similar pattern. Line numbering in legend reflects numbering convention of the survey contractor (LI 21 and LI 93)

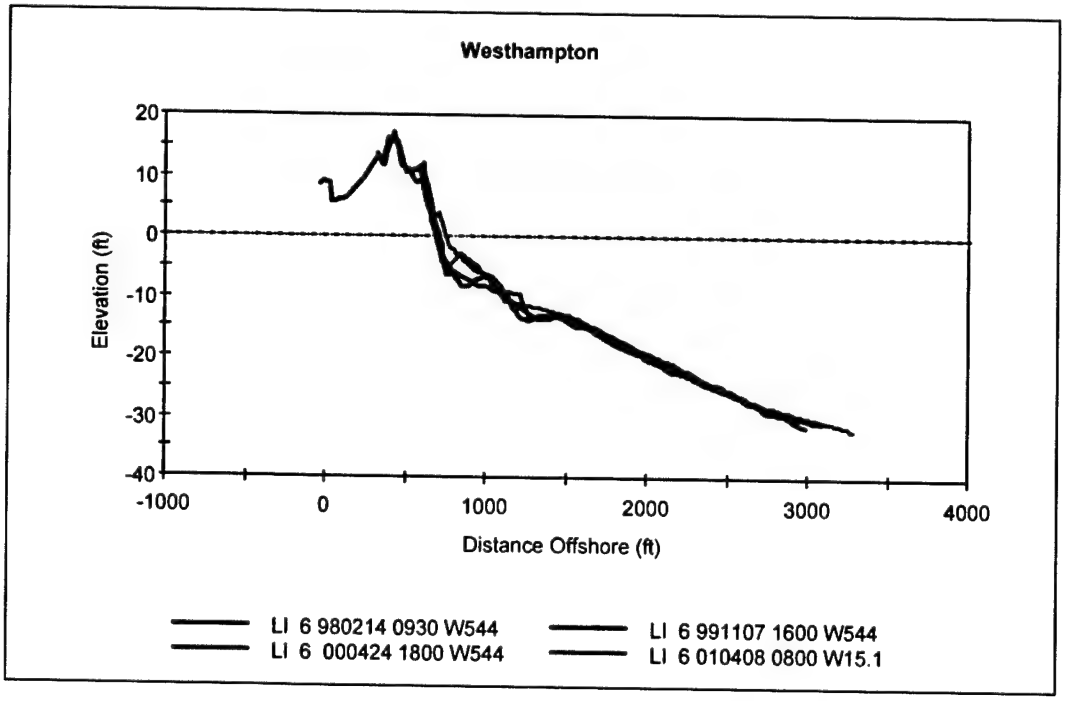


Figure A22. Westhampton 15.1 (formerly W544), from Westhampton Interim Project area. Almost straight offshore slope may be artifact of fill, and shoreface has not yet developed offshore equilibrium profile shape

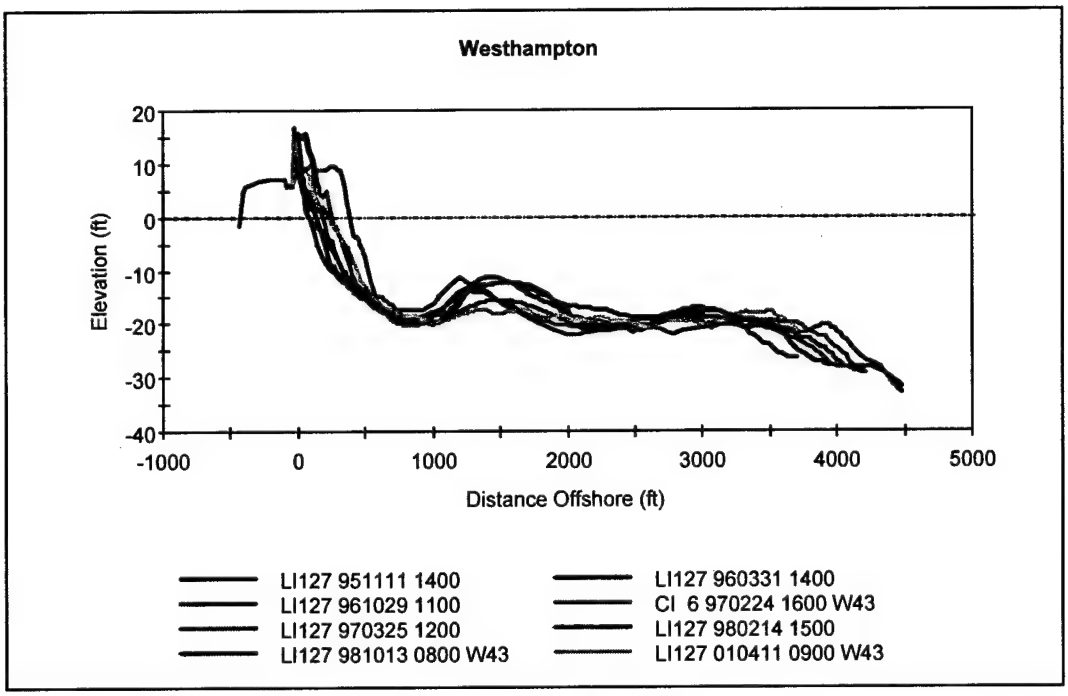


Figure A23. Westhampton 43. These profiles cross Shinnecock Inlet ebb shoal. Complicated pattern reflects movement of sand bodies along and over shoal

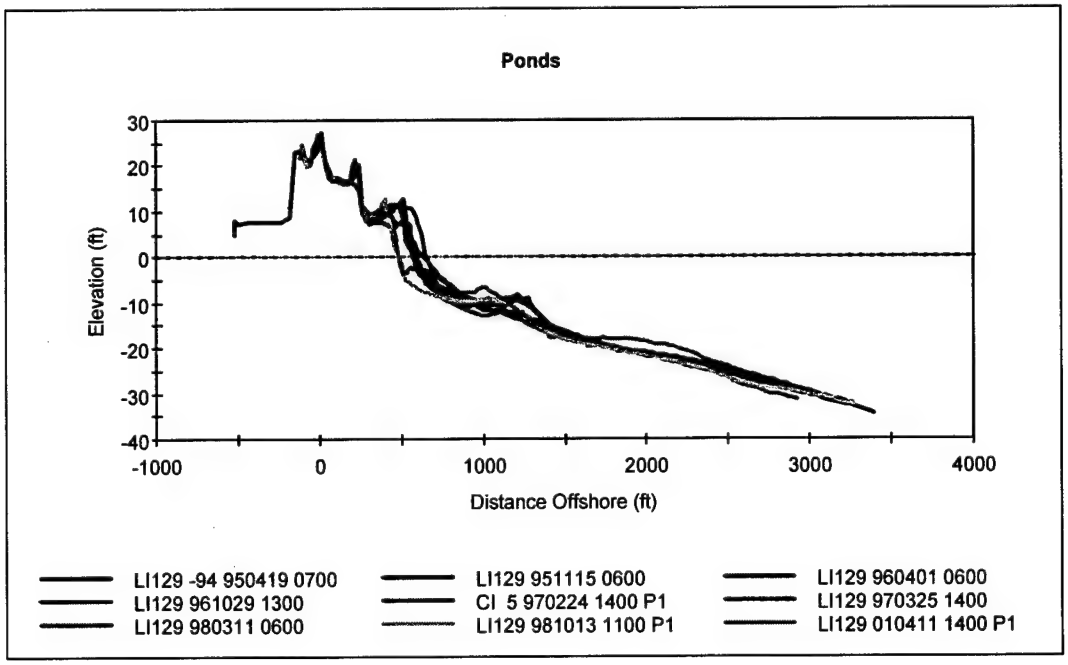


Figure A24. Ponds 1, at east edge of Shinnecock Inlet ebb shoal. Poor convergence offshore may be caused by movement of sand onto shoal. Shoreface does not have equilibrium profiles shape here, as shown by straight offshore slope

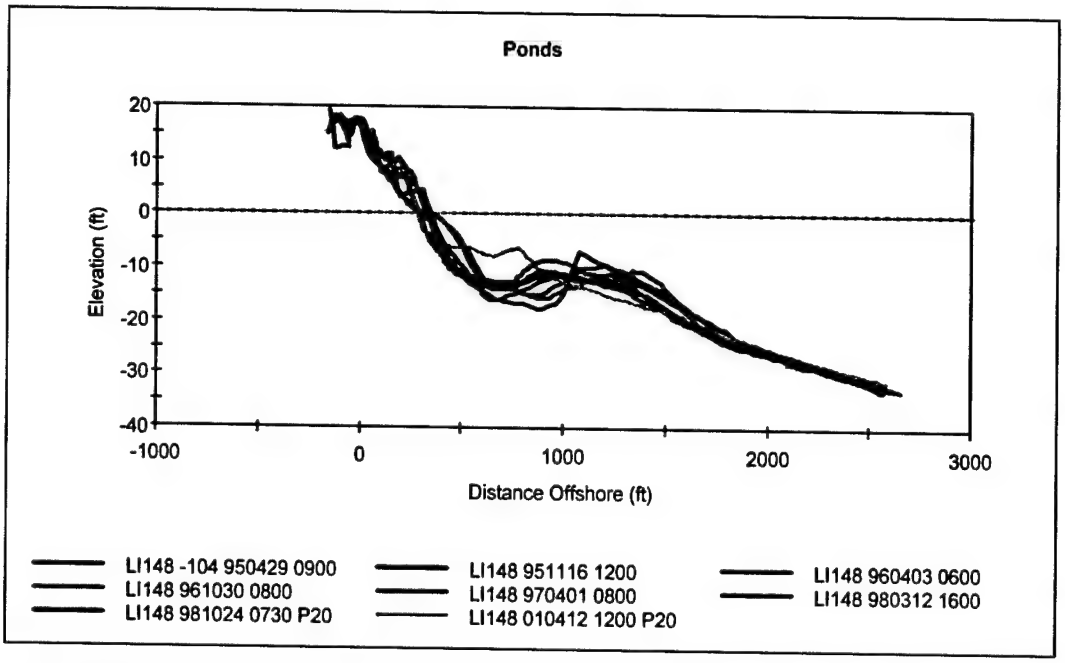


Figure A25. Ponds 20, near intermittent opening to Mecox Bay. Shoreface shows active sand bar movement

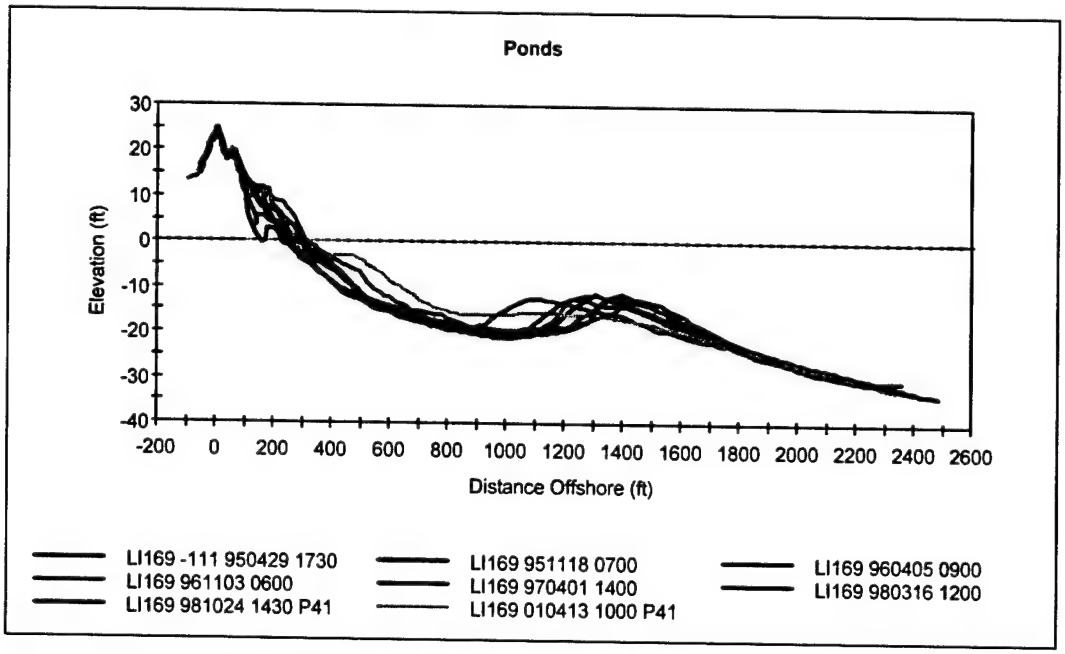


Figure A26. Ponds 41, near Lily Pond. Here, shoreface also has active bar movement

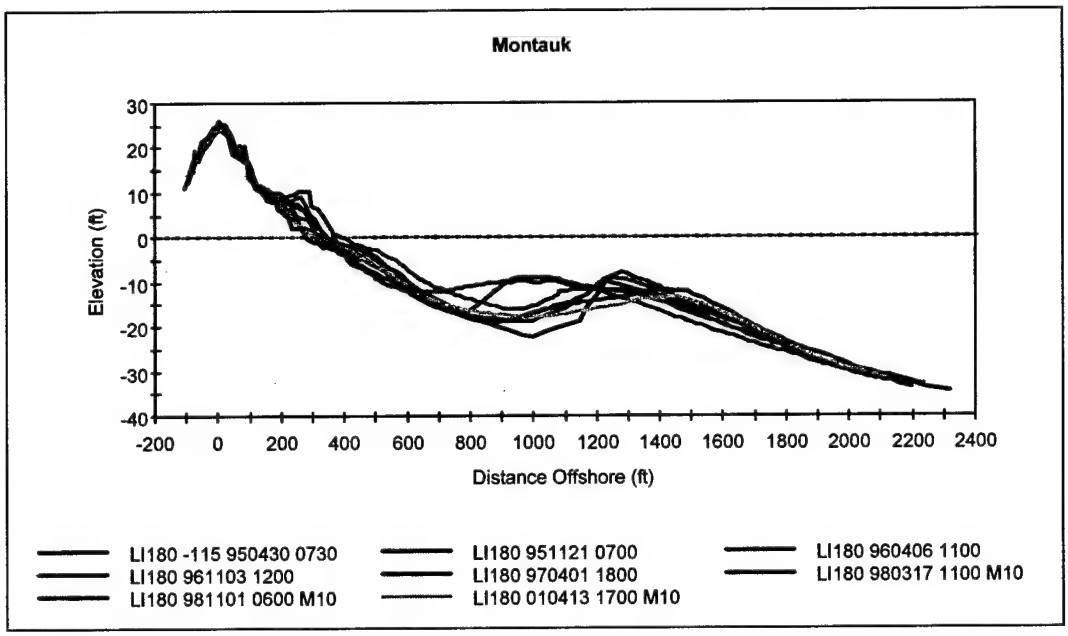


Figure A27. Montauk 10. Located in sandy coastal region of the Montauk reach, this area features low coastal plain with dunes and sandy offshore profile. Profiles resemble ones further west on Long Island although there is no barrier island or spit here

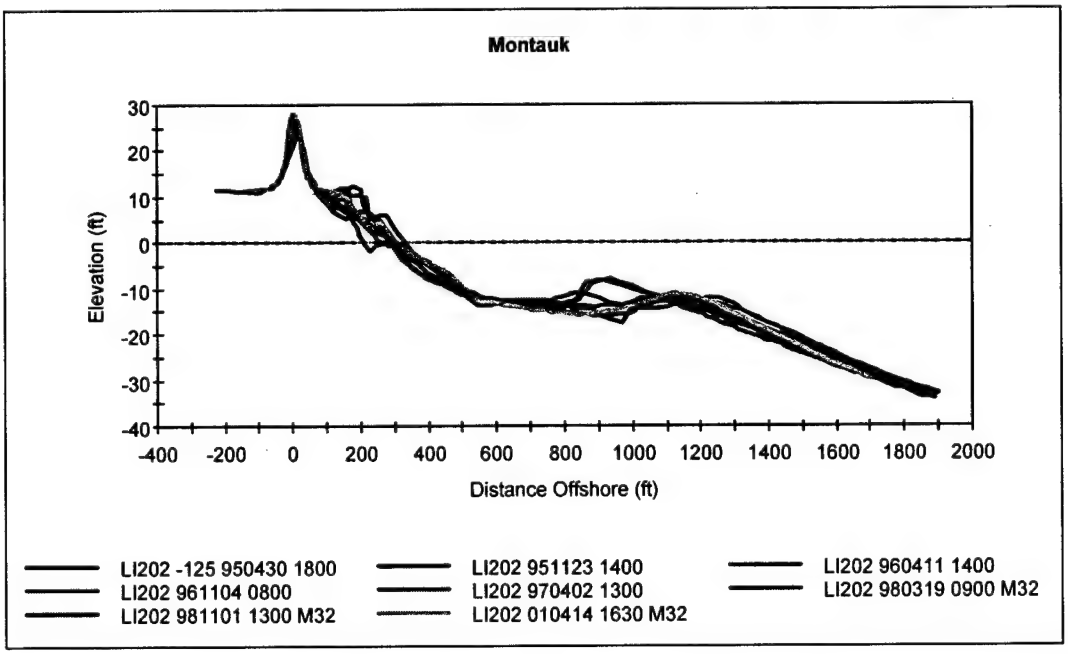


Figure A28. Montauk 32, Montauk Village. This is transitional region of Montauk reach, where low till bluffs rise from shore but shoreface has bars that appear to be active. Here, at Montauk Village, 30-ft-high dune is most probably artificially maintained

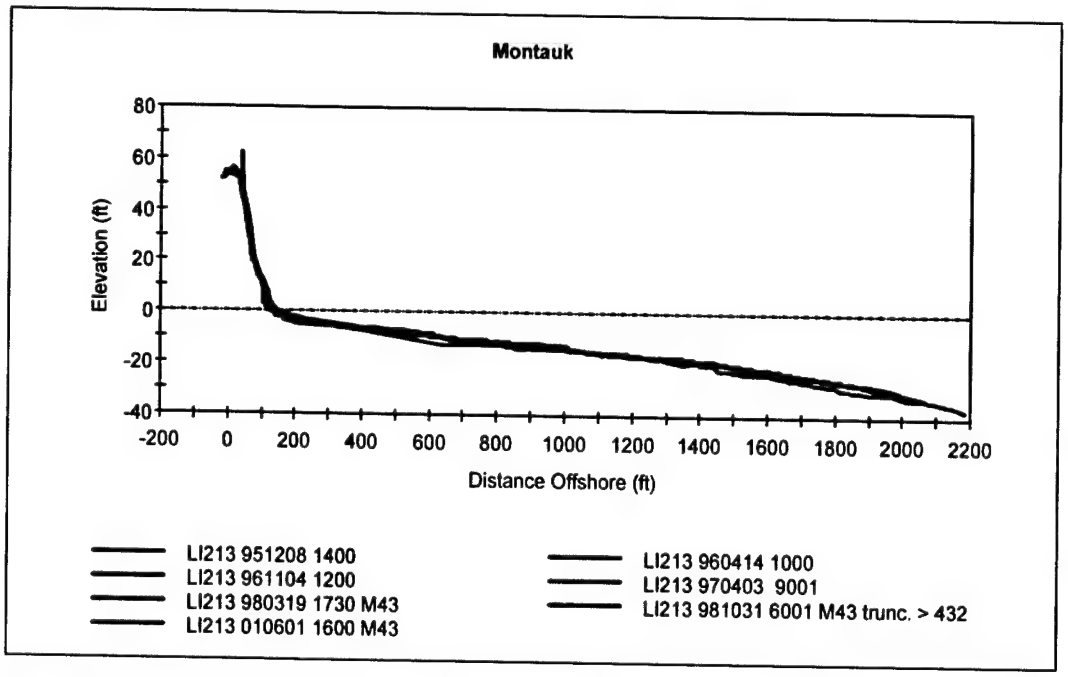


Figure A29. Montauk 43. This is easternmost profile location in ACNYMP study area and extends out from shore near the historical Montauk lighthouse. This is high bluffs morphologic region, where narrow cobble beach lies at base of bluffs and seafloor slopes offshore as flat plane. Sea bed consists of cobble, rock, and occasional sand patches

Appendix B
1955 and 1979 Profile Monuments

The USACE surveyed profiles on Fire Island in 1955. In 1979, A. V. Strock and Associates, Inc., collected another series of long lines along Fire Island (RPI 1983).[1] Table B1 (modified from Table 2 in RPI (1983)) lists the coordinates for both the 1955 and 1979 monuments. The Corps of Engineers 1979 monuments consisted of aluminum caps set on stainless steel rod driven to refusal depth.

When new monuments were established in 1995 at the beginning of the Atlantic Coast of New York Monitoring Program (ACNYMP), survey contractor Erdman, Anthony and Associates, Inc., of Harrisburg, PA, was instructed to locate new monuments as close as possible to the positions of the older 1979 Strock monuments. In many cases, the new monuments were set very close to the 1979 origin location. In other cases, the new monuments were offset from the 1979 locations based on guidelines provided by the U.S. Army Engineer District, New York. Monumentation control was based on a GPS network developed from HARN control points in Connecticut. In addition to profile survey monuments, Erdman Anthony also set more permanent inland monuments approximately every 5 miles along the project. These consisted of stainless steel rods driven to a depth of 40 ft with aluminum markers and protective covers. These are considered to be of second order accuracy or better (OCTI 1997).

Because of inconsistencies in the positioning of the 1995 monuments, in 1996, survey contractor Offshore and Coastal Technologies, Inc – East Coast attempted to locate and resurvey the positions of both the 1979 and the newer 1995 monuments (OCTI 1997). Of 17 older monuments that could be recovered, 14 were still intact (typically situated where dunes are large and stable). However, the OCTI survey team discovered that some of the 1979 monuments were not in the exact locations as indicated on data sheets. Comparison of the 1979 locations relative to present monuments are listed in Tables 3 in OCTI (1997). Users are warned that the accuracy of the coordinates in Table B1 is questionable, and the values should be used cautiously.

[1] All references cited in this appendix are listed in the References section at the end of the main text.

Note that most of the 1955 and 1979 monuments are not at identical locations, a factor that needs to be considered if the 1955 data can ever be recovered and compared with the 1979 or more recent data. The 1979 data has been rectified by OCTI to match the contemporary monuments, and is available digitally from the New York District. Corrections to the 1979 data are listed in Table 4 in OCTI (1979).

Table B1
Baseline (bench mark) Coordinates for Long Ranges (landward points of control volumes)

USACE Range No.	Coordinates		Strock 1979 Range No.	Coordinates	
	North	East		North	East
58	315,250	2,590,730			
57	315,250	2,590,730			
56	306,458	2,580,930			
55	303,558	2,574,680			
54	297,958	2,561,320	77	299,464	2,564,630
			76	296,366	2,558,660
53	293,462	2,550,000	73	290,219	2,546,920
52	283,062	2,531,900	71	285,081	2,536,500
51	273,600	2,512,480	66	271,355	2,508,280
50	266,033	2,497,470	63	263,874	2,493,290
49	260,517	2,486,830	62	260,855	2,487,380
10+00W	260,758	2,487,480			
2+00W	261,080	2,488,210			
16+00E	261,835	2,489,840			
60+00E	263,920	2,493,710			
48	254,750	2,476,320	59	254,718	2,476,100
47	245,758	2,459,130	55	244,709	2,457,140
46	240,833	2,449,510	54	242,874	2,453,550
45	235,533	2,438,650	51	235,065	2,437,470
44	228,767	2,422,160	047A	227,939	2,422,050
43	228,088	2,420,810	47	227,995	2,420,740
			046B	227,371	2,419,390
			046A	226,590	2,418,120
			46	223,344	2,416,660
42	223,350	2,409,540	45	223,992	2,410,630
41	218,983	2,398,360	44	220,503	2,402,200
			43	218,595	2,397,420
			42	216,841	2,392,890
			41	215,446	2,389,260
40	210,767	2,377,180	40	213,679	2,384,680
39	208,700	2,371,550	39	211,923	2,380,120
			38	210,413	2,376,080

(Continued)

Table B1 (Concluded)

USACE Range No.	Coordinates		Strock 1979 Range No.	Coordinates	
	North	East		North	East
440+00	211,910	2,380,050			
568+00	207,465	2,368,050			
38	204,558	2,360,290	34	202,213	2,353,900
590+00,	206,685	2,366,000			
720+00	202,175	2,353,790			
37	199,275	2,345,580	33	201,253	2,351,200
750+00	201,186	2,350,950	032B	200,607	2,349,530
808+00	199,200	2,345,510	032A	199,953	2,347,860
36	199,242	2,344,330	32	198,798	2,344,220
35	194,800	2,333,760	30	195,124	2,334,480
34	189,583	2,321,640	28	190,929	2,324,610
33	182,575	2,305,030	27	188,347	2,318,410
			24	182,981	2,305,920
32	179,083	2,297,310	22	179,184	2,297,490
31	172,150	2,283,320	20	173,251	2,285,530
30	166,333	2,271,580	17	165,827	2,270,500
29	161,333	2,259,390	15	162,120	2,261,800
			14	160,490	2,257,070
28	155,533	2,241,110	12	157,503	2,247,280
27	153,558	2,234,180	11	156,711	2,244,399
			10	155,231	2,240,190
			9	153,485	2,234,300
			8	152,423	2,230,020
26	149,667	2,221,670	7	149,284	2,220,310
			6	148,583	2,217,800
24	146,392	2,209,830	5	147,503	2,213,260
			4	146,106	2,208,010
20A	144,583	2,192,290	3	145,489	2,202,820
20B	146,650	2,193,080	2	145,017	2,197,230
20C	147,160	2,193,750	1	145,102	2,192,530
21	147,710	2,194,390			
21A	146,170	2,195,450			
21B	145,600	2,196,490			
22	145,705	2,197,820			

Source: RPI. (1983). "Final report, Fire Island Inlet to Montauk Point, Long Island, New York reformulation study, sediment budget analysis summary report," prepared for U.S. Army Corps of Engineers, New York District, Research Planning Institute, Inc., Columbia, SC.
Some of the physical monuments still exist. The quality of the 1955 and 1979 surveying is suspect, and the accuracy of the coordinates in this table is unknown.
Coordinate system: LI Lambert, NAD 27

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE (DD-MM-YYYY)	2. REPORT TYPE	3. DATES COVERED (From - To)
September 2002	Report 1 of a series	

4. TITLE AND SUBTITLE

Atlantic Coast of New York Monitoring Program: Cross-Shore Profiles, Quality-Control Procedures, Monumentation, and Data Archiving

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

Andrew Morang

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

U.S. Army Engineer Research and Development Center
Coastal and Hydraulics Laboratory
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

8. PERFORMING ORGANIZATION REPORT NUMBER

ERDC/CHL TR-02-16

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

U.S. Army Engineer District, New York
26 Federal Plaza
New York, NY 10278

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT

Approved for public release; distribution is unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT

The Atlantic Coast of New York Monitoring Program, a cooperative effort between the U.S. Army Engineer District, New York, New York State Department of State, and New York Sea Grant, was initiated in 1995 to collect and assemble data on coastal processes along the south shore of Long Island. The program sponsored the collection of aerial photography and cross-shore topographic profiles from Coney Island to Montauk Point. For the purposes of organizing and classifying the profile data, the south shore has been divided into eight reaches: Coney Island, Rockaway Beach, Long Beach, Jones Beach, Fire Island, Westhampton, Ponds, and Montauk. The total number of profiles assembled in the ACNYMP databases is close to 3,000, of which 2,000 were long lines, 900 were short (wading depth), and less than three percent were rejected after quality inspections. The bulk of the profiles date from 1995 and 2001, with some earlier surveys included for the Coney Island and Rockaway reaches. Quality control and verification of the profiles proved to be a major effort, evolving into a five-part process: (a) Initial inspection at New York District; (b) Detailed plotting and screening at the Coastal and Hydraulics Laboratory (CHL) in Vicksburg; (c) Joint inspection of a CD-based display and viewing tool developed by a contractor; (d) Developing a consensus on questionable profiles at a workshop in 2001; and (e) final adjustments and corrections at CHL. These procedures will be used for future data collected on Long Island.

15. SUBJECT TERMS

See reverse.

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. TELEPHONE NUMBER (include area code)
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED		93	

15. (Concluded)

Beach profiles
Coney Island
Fire Island
Jones Beach
Long Beach
Long Island
Monitoring data
Montauk
Ponds
Rockaway Beach
Survey monuments
Westhampton Beach